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EPIDEMIC ENCEPHALITIS—PRESENT STATUS OF ETIOLOGY AND TREATMENT*

By WILLIAM L. BENDER, M. D.
San Francisco

DISCUSSION *by William Dock, M. D., San Francisco; John C. Ruddock, M. D., Los Angeles; Laird M. Morris, M. D., San Francisco.*

WE are in a period in the history of epidemic encephalitis when a good deal can be gained by reviewing what has been learned since the first cases of the epidemic appeared in Austria ten years ago. Comparable to the studies of poliomyelitis and influenza, the investigation of encephalitis has rapidly waned, as the dying out of the epidemic has decreased both the desire and opportunity to attack the problems of etiology and treatment. Instead of the great mass of experimental results which the first years of the epidemic produced, there appear many clinical reports of the behavior of the disease and its relation to other diseases, which throw new light on the subject.

INCIDENCE

Encephalitis still remains a very serious problem, not only on account of the numerous cases with residual symptoms, many of which undoubtedly represent continued activity of the infection, but also because fresh cases still appear with disturbing frequency. It has recently been pointed out that the continued care of the chronic cases, many of them requiring long periods in institutions, is becoming an economic problem. The Medical Research Council of Great Britain in a report[1] of the Sheffield epidemic states that in England and Wales in 1924 there were 5039 cases reported. This is more than the sum of cases on record for the previous five years elapsing since the disease was made notifiable in 1919. During 1924 the mortality was 27 per cent. In 1925 there were 2635 cases reported, a little over half the number in 1924 but nearly twice as many as in any previous year. According to the epidemiological report of the League of Nations,[2] in England and Wales there were 2273 cases reported in 1926 against 2635 in 1925; in Scotland there were 193 in 1926 against 206 in 1925; in Russia 905 in the first nine months of 1926 against 969 for the same period in 1925; other nations of the League seemed to fare comparably. According to the United States Public Health Reports[3] there were 1441 deaths in the United States in 1924, and 1630 in 1925, due to encephalitis, a rate of about 1.5 per 100,000 population; compared with 1.0 for meningococcus meningitis and 8.0 for typhoid. This figure proves encephalitis still to be a disease of some public health importance in the United States. The figures for 1926 for the nation are not yet available. Last year ninety cases were reported in California and nineteen cases up to May 1, this year. The League of Nations report sets the incidence of the disease in the epidemic from August to October, 1926, in certain Japanese provinces at 13 to 15 per 100,000 inhabitants. In judging the figures quoted above it must be remembered that as the disease, especially in its more unusual forms, has become more generally recognized, fewer cases escape notification.

The report of the Sheffield epidemic[1] vividly portrays the gravity of epidemic encephalitis. Of 301 cases the immediate mortality in 1924 was 14.3 per cent; by the end of 1925, 21.3 per cent presented the Parkinsonian syndrome and five of these patients had died by the time the report was published in September, 1926; 13.6 per cent had sequelae, making work impossible; 31.2 per cent had incompletely recovered and only 17.6 per cent were clinically well with, however, the possibility of late oncoming residua.

A small epidemic of the Australian "x-disease" occurring in April and May, 1925, is reported by Baldwin and Heydon,[4] who review previous reports. It is an acute infection with high mortality, simulating poliomyelitis but with marked cerebral involvement. Starting in Australia in 1917, when encephalitis was appearing in Europe, it has run through three epidemics; the third was limited to one town and ten of eleven patients died.

EXPERIMENTAL

As we review the inoculation experiments initiated by Loewe and Strauss in this country in 1919, and carried on particularly by Levaditi and his coworkers in France, McIntosh and Turnbull in England, and Kling and his associates in Sweden, we find almost complete agreement until 1924. It had been believed that a filterable virus was the etiological agent of encephalitis and that the infection was transmissible through many generations in animals, until it was later shown that rabbits, which had proven the most satisfactory subjects, were the victims of spontaneous en-

* From the George Williams Hooper Foundation for Medical Research, and the Department of Medicine, University of California Medical School, San Francisco.

cephalitis. This fact made questionable all reports of successful transmission of the infection, as pointed out by Flexner.[5] After some controversy between groups of different laboratories concerning the validity of their respective results, work was apparently suspended, for few reports have appeared since 1924. Zinsser and Fei-Fang Tang [6] failed to transmit encephalitis from eight human cases to rabbits and Dible[7] failed in ten instances.

My own experience was quite in accord with that of the others. Working from 1922 to 1925, I had found lesions in the brains of 13 per cent of 160 rabbits inoculated with material from human cases and from other laboratories; review of my sections revealed the lesions of the spontaneous rabbit infection with sufficient frequency to throw doubt on the results.

Perhaps better than the "filterable virus" theory, has the test of time been withstood by the view that a streptococcus is the causative organism. Rosenow has contributed most of the cultural and inoculation experiments, with somewhat similar reports from Italian and German workers. The rôle of the "pleomorphic streptococcus" has been more recently reviewed by Evans and Freeman,[8] who report successful transmission attempts of their own. Apparently this organism is a filter passer in some forms, and this fact may serve to reconcile the two views; so far, however, there is wide difference of opinion.

The relation of the virus of herpes to that of encephalitis has become an engaging subject. The herpetic virus, unlike the encephalitic, is very satisfactory to work with, regularly producing infection in animals and transmissible through many generations. It is usually obtained from the lesions of herpes labialis; the fluid from progenitalis and zoster[9] vesicles has also been shown to be infectious, though there has been some question about the last-named source. A great deal on transmission and immunological work has been published. By corneal inoculation, keratitis and encephalitis have been produced in animals, the latter with lesions characteristic of human encephalitis according to current views on the pathological picture. Encephalitis has also been produced by injection of herpes virus intracerebrally, cutaneously, peritoneally, and by a number of other routes. Animals surviving corneal or dermal inoculation become immune to cerebral injection not only of virus of herpes but also of the so-called virus of encephalitis supposedly transmitted from human cases. The work of Grüter, Doerr, Flexner and his associates, Levaditi, Perdrau, Goodpasture, and many more has been considered in reviews by Da Fano[10] and by McKinley and Holden.[11]

Controversy continues on whether the viruses of herpes and encephalitis are identical or merely members of the same group of filterable viruses, the one with "dermotropic" characteristics, the other with "neurotropic." In the present lack of more definite knowledge about the latter it seems futile to speculate.

CLINICAL OBSERVATIONS

The probable relationship of poliomyelitis to encephalitis on clinical and pathological grounds was debated early. More recently the association with other infections, especially vaccinia, has been pointed out. Winnicott and Gibbs[12] collected forty-five cases of encephalitis following vaccination up to June, 1926. The complication, fortunately rare, is fatal in over 40 per cent of the cases, but the usual sequelae do not appear in those who recover from the acute phase. Encephalitic symptoms come on in four to fifteen days after vaccination, usually about ten or twelve, and either meningeal symptoms, palsies or lethargy predominate. Microscopic brain lesions, especially in the medulla and midbrain, considered characteristic of encephalitis, have been reported by Luksch[13]; he also produced encephalitis in 50 per cent of rabbits vaccinated on the cornea with the material used on the patients. Since this review a number of similar cases have been published, chiefly in the German journals. Instead of encephalitis, Frommel and Baumgartner[14] encountered herpes zoster over the distribution of the lateral cutaneous nerve of the thigh. The clinical relation of herpes comes up again in the report by Flexner and Flexner[15] of a severe prolonged case of encephalitis which was ushered in by herpes of the intercostal nerves; these authors stress the increasing frequency of zoster in recent years.

Winnicott and Gibbs[12] also report twelve cases with nervous symptoms, some characteristically encephalitic, coming on in the course of varicella; there were no fatalities or residual nervous symptoms. They also refer to several cases of measles complicated by encephalitis and believe that post-encephalitic residua have followed measles without acute manifestations. Autopsy in one case revealed hemorrhagic encephalitis. McLendon[16] reports encephalitis occurring in the course of measles and cites another case; both recovered with the use of convalescent blood. Encephalitis complicating measles, especially the hemorrhagic form, may of course bear no relation to the epidemic disease.

The development of encephalitis after vaccination has led to another controversy, one side holding that the causative virus is present in the lymph used and possibly revealing a relationship between pox and encephalitic viruses, the other that vaccination simply activates a nervous disease of different etiology. Neither view is supported by known facts though the former gains credence from the observation that corneal vaccination has been followed by encephalitis in animals. Probably the main value of this whole group of observations is to confirm the opinion that we have to deal with a group of ultramicroscopic organisms, more or less closely related, about which little is definitely known though satisfactorily approached in the case of the virus of herpes.

Even further afield from human encephalitis is distemper of dogs, a highly infectious disease

with marked nervous symptoms. Pugh[17] reports an epidemic with fifty fatal cases. The nervous symptoms were protean—paralyses especially in the hind legs, ataxia, lethargy, ocular palsies, myoclonia, changes in behavior, etc. Herpes was common. Post-mortem examination of the brains revealed, predominantly in the basal nuclei, marked mononuclear cell infiltration especially in the perivascular spaces, the picture which is considered characteristic of epidemic encephalitis.

TREATMENT

One who has come into contact with patients with encephalitis either in the acute or chronic form and has cast about for a reliable means of treatment needs no reminder that none is available. Many reports have appeared of various procedures applied to small groups of cases with encouraging results, but unfortunately these have not been successful in the hands of subsequent authors or have not been used on larger numbers by others. Strecker and Willey[18] review treatment up to 1925. Drugs included sodium salicylate, sodium iodid, urotropin, colloidal gold, mercury, organic and inorganic arsenic preparations, hypertonic salt solution; protein therapy consisted of sodium nucleinate, casein, normal horse serum, antidiphtheritic serum, typhoid vaccine, influenza bacillus antigen; convalescent serum had been suggested and used in a few cases; Rosenow had reported good results with his antistreptococci serum, but had not received the confirmation of others. Autoserotherapy was considered of value, but subsequent use has not borne out this opinion; Finlaysen and Karnosh,[19] for instance, found that intraspinal injections of the patient's serum improved only three of eight cases and made two definitely worse.

Strecker and Willey,[18] following the encouraging report of Buss, found that neutral acriflavine caused improvement in ten of fourteen chronic, and Riggs[20] later reported quick recovery of three acute cases. The drug was given in courses of eight daily intravenous injections of 10 cc. of the 0.5 per cent solution. It has thus been judged favorably by three writers and its value should be more generally determined. On the other hand Hengstler[21] was unable to confirm the results of Visher[22] with mercurochrome.

Hyoscin, as in true Parkinson's disease, was found to be the most satisfactory drug by Hyslop[23] and probably is the one most relied upon generally to alleviate the spastic symptoms. He found adrenalin, pilocarpin, strychnin, atropin and gelsemium of little value, while nicotin caused transient relief of spasticity.

Further observations on the action of nicotin have been published by Hermann and Wotke[24] and Moll.[25] The former noted that cigarette smoking by a patient with postencephalitic Parkinson's disease subdued the tremor sufficiently for him to eat or write; while subcutaneous injections of nicotin up to 1/30 grain had no effect, the use of a decoction of cigarette tobacco transiently relieved tremor. Moll used larger doses, from 1/30 to 1/3 grain hypodermically, and noted improvement in nine of thirteen cases with the Parkinsonian syndrome. Nicotin depresses the sympathetic system and accordingly interrupts the impulses concerned in maintaining plastic tone, according to his view.

Protein shock has proven of value in the treatment of the chronic cases and improvement has been reported following acute intercurrent infections. As in the case of other chronic diseases of the central nervous system the introduction of acute infections has been tried. Hoff,[26] getting unsatisfactory results with the use of urotropin, sodium iodid, and cacodylates, but encouraging improvement after shock treatment with typhoid bacillus vaccine, infected a series of thirty cases with malaria. Nineteen of the patients were in the Parkinsonian group and of these four improved; two others were better after treatment, a total of six. He does not mention untoward effects. My own experience with five chronic cases was very disappointing; the general condition of two was probably weakened by the paroxysms and the remaining three apparently were not influenced.

The effect of recurrent fever produced by injecting an emulsion containing *Spirocheta duttoni* intramuscularly has been tried by Marcus, Kling, and Höglund[27] in eighteen cases, the majority of which were severe and of long standing. Twelve were considered markedly improved when the spirochetal infection had burned itself out after from two to five febrile paroxysms, and in several the improvement seemed progressive.

Very little has been attempted in the field of specific therapy. Rosenow's antistreptococci serum has been referred to. The use of influenza bacillus antigen, mentioned above, has been on an empirical basis without scientific support of the relation of *B. influenzae* to encephalitis and the few recorded achievements were probably due to foreign protein reaction. Levaditi[28] in the light of his successful immunity experiments has initiated clinical trials of artificial immunity in acute and chronic human encephalitis. The method is bold, consisting of intraspinal injection of his presumed "encephalitis virus," fully active in brain material of rabbits dying of the experimental disease. In a paper by Marie and Poincloux[29] improvement is reported in six patients with postencephalitic Parkinsonism following one or more intraspinal injections of this "neurovaccine." Gilbert and Tzank[30] have added the report of an acute case recovering under similar treatment, and Henner[31] of three acute and one subacute recovering and one of three chronic cases improving. The specificity claimed by these authors is questionable not only because of the uncertain status of the fundamental experimental work, but also because the profound reactions following the injections may account for the results on a purely nonspecific basis.

It is probably good practice to clear up nasal sinus infection in chronic encephalitics on account of the frequency with which the nasopharynx acts as a portal and also because of the proximity to

the seat of the disease. Yates and Barnes [32] found sinus infection in all of twenty-three encephalitics examined, and there have been several reports of a patient or two improving after eradication of sinus infection.

SUMMARY

Epidemic encephalitis is a serious disease, not only because of a considerable immediate mortality, but especially on account of a high incidence of sequelae.

The disease continues to occur in endemic form with sufficient frequency to grant it a good deal of importance. Added to this is the tendency to break forth in epidemic form.

A causative organism has not been determined; but observations, both experimental and clinical, seem to place encephalitis in a group of infections probably caused by related filterable viruses.

No satisfactory method of treatment is available. In addition to the usual methods of handling an acute infection, many procedures have been used in the acute phase of the disease and even more in the chronic. Some of these measures have offered hope of success, but instead of carrying on promising remedies the tendency has been constantly to introduce new ones.

384 Post Street.

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DISCUSSION

WILLIAM DOCK, M. D. (Lane Hospital, San Francisco)—Doctor Bender's comprehensive review again impresses on one the imperfections in our knowledge of etiology of many widespread diseases as well as the ineffectiveness of treatment. The fact, noted by Doctor Bender, that the disease, and presumably the etiologic factor, continues for years after the onset makes it seem very unlikely that any vaccine or serum treatment will be more effective than non-specific protein shock. This is urged purely from analogy with such diseases as syphilis, tuberculosis, acute rheumatic fever, and the like, in which one attack does not confer immunity, and in contrast with those diseases in which immune therapy is notably effective, *e. g.*, rabies, diphtheria, smallpox—all of which are followed by more or less prolonged immunity in the survivors. The herpes encephalitis of rabbits is followed by immunity to reinoculation, and this may be due to continued activity of the virus or to true immunity. Further light on this may serve to put herpes encephalitis into the class of human encephalitides occurring during mumps, varicella and vaccinia, rather than in the class of encephalitis lethargica epidemica. The difficulties of working on etiology of diseases such as rheumatic fever and encephalitis, which affect only a few people and apparently cannot be transmitted to animals, are so great as to be appreciated only by men like Doctor Bender, who have devoted some years to the problem. Careful observation of all cases of encephalitis, together with pathologic studies in fatal cases, will continue to furnish significant data and give us a sound basis from which to extend experiment.

JOHN C. RUDDOCK, M. D. (1002 Pacific Mutual Building, Los Angeles)—Doctor Bender's paper is an excellent, comprehensive summary of the present paucity of knowledge regarding the etiology of epidemic encephalitis. Doctor Bender brings before us the point that there is such a wide variety of opinions among the research workers who are attempting to catalogue the etiological factor of this disease. The interesting relation of the etiological identity of encephalitis and herpes febrilis corresponds to the recent work of Szymanowski and Zylerblast-Zand, who also found changes in the liver of their experimental animals, which finding is of interest in view of the incidence of hepatic cirrhosis in Wilson's disease.

Such reviews of such a widespread disease should stimulate similar reviews on other widespread dis-

eases in which the causative factor is not clear, such as acute rheumatic fever.

LAIRD M. MORRIS, M. D. (490 Post Street, San Francisco)—Doctor Bender presents a very comprehensive study of epidemic encephalitis. He is to be congratulated on the completeness of his paper and the manner in which it is presented. A certain interest has recently been aroused in other types of encephalitis or meningoencephalitis which attack the central nervous system in a manner similar to that of epidemic encephalitis. I refer to encephalitis following measles, mumps, vaccinia, and varicella. As presented by Doctor Bender these complications are not common, but are etiologically quite distinct from the epidemic variety. These conditions are caused by ultramicroscopic organisms, and a differential diagnosis at present is quite impossible by changes in the spinal fluid. The clinical history is therefore of paramount importance.

THE EFFECT OF LEAD UPON NORMAL AND MALIGNANT TISSUES*

By FRANKLIN R. NUZUM, M. D.
RICHARD D. EVANS, M. D.
AND
HENRY J. ULLMANN, M. D.
Santa Barbara

DISCUSSION *by D. Schuyler Pulford, M. D., Woodland; William Ophüls, M. D., San Francisco.*

MANY substances have been used in the treatment of malignant neoplasia, including salts of tellurium and selenium, and colloidal preparations of lead, copper, sulphur, silver, and gold. By their use regressive changes have been noted in the tumors, but in general these compounds have proved too toxic to justify general usage.

REVIEW OF RECENT LITERATURE

W. Blair Bell, to whom the credit is due for the recent interest in this problem, found that lead produces abortion by an elective toxic action on the cells of the trophoblast in animals poisoned by lead, and remarked on the frequency of abortion in lead workers.[1] He showed this to be due to coagulative necrosis of the chorionic epithelium, specific for lead and not produced by the other metals used. Working on the hypothesis that chorionic epithelium is physiologically malignant and closely related to the malignant tumors, he used lead in the treatment of these conditions.[2] He states that malignant neoplasia is a specific growth process in which there is a reversion on the part of the starving cell to the nutriment seeking proclivities of the ancestral chorionic epithelium.[3] According to the hypothesis, lead is attracted to these tissues because of the higher phosphatid values and higher phosphatid-cholesterol ratios in chorionic epithelium and malignant new growths, and that it serves as a substitute for the biological inhibitor of growth of the chorionic epithelium.[3,4] Lead was found by chemical analyses to be present in the tumor tissue out of proportion to that found in other tissues.[4]

The preparation used was colloidal metallic lead prepared by the Bredig method in 0.4 per cent aqueous gelatin with the addition of 0.027 per cent calcium chlorid.[5] The final product was centrifugalized to eliminate particles larger than 0.2 micron, made hypertonic by the addition of sodium chlorid 2.0 per cent, potassium chlorid 0.05 per cent, and calcium chlorid 0.027 per cent. The product was sterilized by boiling, and remained stable two or three days before becoming toxic. Of 227 patients treated by means of intravenous injections of the preparation, all in a hopelessly advanced stage of the disease, fifty have lived for from one to five years in a completely arrested state.

Histological evidence of the above striking effects is difficult of demonstration,[6] since microscopic examination must be made within two or three weeks of the lead injection when the regressive changes are most active. Later there should be a complete disappearance of the tumor cells, with some inflammatory reaction, and finally a replacement fibrosis. Glynn[7] urges that great caution be exercised in the interpretation of such alterations since degenerative changes commonly occur in any untreated malignancy, and reports only six instances where histological changes are demonstrable, as probably due to the lead alone. There were: distortion of the carcinoma cells into spindle, star, and sarcoma-like shapes and actual necrosis of these cells. The epithelial nature of the majority was lost. A subacute interstitial inflammatory reaction with a complete absence of tumor cells was also found. Plates of photomicrographs illustrative of these changes are given. He concluded that in the majority of lead treated malignant growths there is no histological evidence of the effect, but that in certain instances lead seemed to have increased the regressive changes which usually occur in carcinoma and to slow the rate of growth. Greater specialization of the malignant cells with keratinization and the formation of nests and goblet cells are manifestations of the slowing of the rate of growth. The lesser degree of regression found in relatively avascular fibrosed lymph glands indicates that the action of lead depends on a well-developed and unobstructed blood supply. He states that the absence of characteristic change is no proof that lead has no action, as there is nothing histologically characteristic of the effect of iodid on gummata.

Wood has observed a disappearance of malignant tumors of rats two or three days after the injection of lead suspensoids.[8] There is first an intense congestion and edema and after twenty-four hours there are abundant thromboses in the tumor capillaries with resultant necroses of the regions supplied by the affected vessels. The tumor shrinks and the tension is relieved. Unless the dose of lead has been large and repeated, however, there are usually growing cells about the periphery from which recurrences may take place. Wood believes the effect is probably pro-

* From the Pathological Laboratory and Department of Cancer Research of the Santa Barbara Cottage Hospital, Santa Barbara, California. Director of the Department of Cancer Research, Henry J. Ullmann, M. D.

Read before the Section on Pathology and Bacteriology of the California State Medical Association Meeting at Los Angeles, April 28, 1927.

Fig 1 (top)—The cyst of the right lobe of the liver after evacuation of its liquefied contents.

Fig. 2 (bottom)—The cyst of the left lobe of the liver surrounded by a rim of tumor tissue.

duced both by capillary injury and by direct toxic action on the tumor cells.

Martland, Sochocky, and Hoffman report only one instance in seventeen in which there was unquestioned diminution in the extent of a growth possibly attributable to the lead.[9] This was an epithelioma of the lip and reduction of the inflammatory swelling might have been the explanation. They used very large doses, from 1000 to 2500 mgm. of a stable lead colloid, the details of preparation of which are not given, in doses of from 50 to 500 mgm., during a period of from six to ten weeks. They found no histological evidence that a cancer cell had taken up or absorbed lead and that no tumor contained more lead than could be explained by the difficulty in separating the tumor from the surrounding lead-containing tissue. Most of the colloidal lead was stored in the main organs of the reticulo-endothelial system by the phagocytic properties of the histiocytes of the spleen, liver, and bone marrow. They conclude that lead in the form of a stable metallic colloid does not enter into combination with the phosphatids present in carcinoma cells after intravenous administration, and that in the absence of thromboses there is no effect on malignant growths.

EFFECTS ON CERTAIN ORGANS

Liver—Marked damage of this organ may be expected since the liver eliminates lead. Alterations varying from fatty change to interlobular cirrhosis have been described in lead poisoning by Hutton, Potain, and Alcock.[10] Ophüls has produced marked focal necrosis of cells in guinea-pigs, though he believes the only condition attributable to the action of lead was the hematogenous pigmentation.[11] Aub, Fairhall, Minot, and Reznikoff agree with Oliver in that the consensus of opinion is that there is no specific change for lead.[12] Focal necroses similar to those seen in infectious diseases in human beings have been produced by Wood in rats, apparently because of vascular lesions.[8] Bell, Williams, and Cunningham noted congestion, fatty infiltration, and deposition of hemosiderin in two human beings and two dogs following the intravenous injection of colloidal metallic lead.[13]

Kidney—As evidence of damage to this organ by its excretion of lead, both the acute and chronic types of nephritis have been reported. Oliver has described acute tubular nephritis characterized by cloudy swelling and fatty degeneration of the cells lining the tubules with destruction of some.[14] Atrophy of the glomeruli with hyalin degeneration of the vessels has been seen.[15] Ophüls has seen some degeneration and fibrous thickening of the glomeruli as the only constant lesion in the guinea-pigs.[11] Cloudy swelling of the tubular epithelium was seen by Bell, Williams, and Cunningham after the use of as little as 34 mgm. and as much as 350 mgm. of lead in treatment.[13] Cloudy swelling and tubular necrosis were found by Wood in animals.[8]

Spleen—Oliver[16] believes there is no noteworthy change of this organ, and Jores has noted increased pigmentation from blood destruction.[17] A slate-brown color due to the storage of large amounts of lead in the spleen has been reported by Martland, Sochocky, and Hoffman.[9]

Blood—According to Aub and his co-authors, the changes include: punctate basophilia, polychromasia, nucleated red cells, anisocytosis, poikalocytosis, and an anemia characterized by a low hemoglobin, the red count being not much decreased.[12]

METHODS

In our own early work, colloidal metallic lead was used, prepared by the Bredig method and made resistant to oxidation by the addition of glucose.[18 21] Owing to the blood destruction produced by this compound, and since certain investigators believe that lead could hardly be present in the blood stream except as the phosphate in the colloidal form,[12] Bischoff (working in our laboratory) has prepared colloidal trilead orthophosphate.[20] Trilead phosphate in a slightly alkaline medium such as the body tissues is stable, and as such its solubility is 0.13 mgm. per liter of water. In equilibrium or in slightly acid conditions, however, dilead phosphate is formed, the

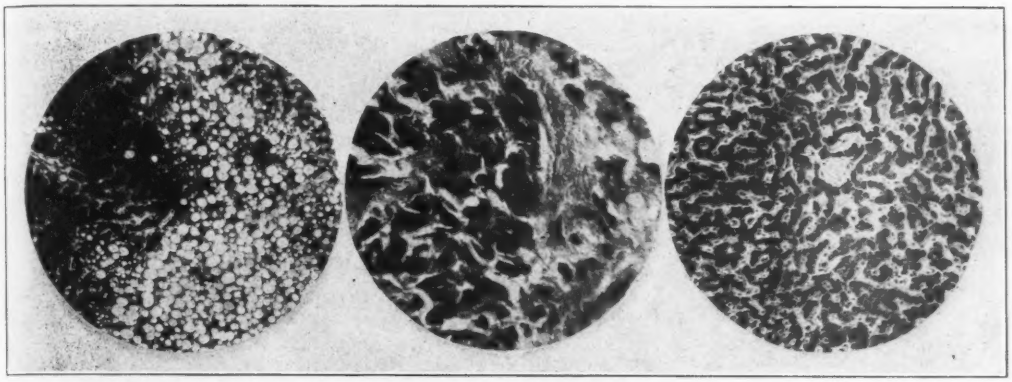

Fig. 3—Marked fatty change of the liver. (Low power.)

Fig. 4—Distorted carcinoma cells in the fibrous tissue capsule of the large cyst. (High power.)

Fig. 5—Focal necrosis of the liver. (Low power.)

solubility of which is approximately one hundred times that of the trilead salt.[12] It was hoped to take advantage of this fact to secure local toxic action within the tumor cells which have been shown to produce three to four times as much lactic acid as normal tissues.[19] The solvent action of lactic acid is specific, as certain more highly ionized acids have a less solvent effect. This of course is in contrast to the theory of Bell, who used lead on the strength of the affinity for the increased lecithin content of the tumors. The dosage and times between injections have varied with different patients and are stated for each one individually. The material includes six necropsies and two biopsies. Necropsies were made within a few hours after death and the sections were imbedded in paraffin and stained with hemotoxylin and eosin.

CASE REPORTS

Patient No. 1—A female, age 41 years, had an endothelioma (diagnosis concurred in by Dr. A. M. Moody of San Francisco) of the neck, excised three years before, and x-ray and radium treatments had been employed. On entrance there was a mass 5 cm. in diameter behind the left ear and metastatic nodules were seen throughout the lung fields in x-ray films of the chest. During three months 221 mgm. of colloidal metallic lead were given in approximately three equal doses. On entrance the hemoglobin was 47 per cent; the red cell count, 2,830,000, while shortly before death the former was 30 per cent, the latter 3,450,000. At necropsy the neck was found infiltrated with extension metastases and there were further metastases to the regional, mediastinal, and biliary lymph glands, and to the lungs and liver. A cyst of the dome of the right lobe of the liver was 8 cm. in diameter and filled with gray-white fluid (Fig. 1). Another of the under surface of the left lobe was 2.5 cm. in diameter with a similar content, and surrounded by a rim of tumor tissue 1.5 cm. wide (Fig. 2). Multiple small nodules up to 4 cm. in diameter were scattered throughout the lungs, and in the centers of some of them there was pus. On section of the liver there was extensive fatty change, so that from one-fourth to one-third of the liver parenchyma was replaced by fat (Fig. 3). Many small regions of tumor cells were seen in the wall of each cyst and many of these were shrunken and distorted (Fig. 4). Unaltered tumor cells were also seen. The wall of the larger cyst was mostly of fibrous tissue with but few islands of tumor tissue. In the lung the centers of the metastatic nodules were poorly stained and some were necrotic and infiltrated with polymorphonuclear leukocytes. In the spleen there was no alteration. In sections of the kidneys there was marked cloudy swelling of the cells lining the first and second portions of the convoluted tubules, and in places the lumina were obliterated. In small regions actual necrosis of these cells had occurred.

Patient No. 2—A male, age 51, had noticed blood in the stools and loss of weight for six months. An annular indurated mass was palpable high in the rectum that bled easily. During twelve weeks 251.2 mgm. of colloidal metallic lead were given intravenously in three doses. The hemoglobin dropped from 78 to 48 per cent, the red cell count from 4,750,000 to 3,310,000. The anatomic diagnoses were: carcinoma of the rectum with regional extension into the wall of the left ureter, and metastases to the lungs, omentum, and peritoneum; multiple abscesses of the lungs (liquefaction of the carcinomatous areas and secondary infection); bilateral hypostatic bronchopneumonia; terminal subacute peritonitis and pericarditis; moderate left hydroureter and hydronephrosis; cloudy swelling of the kidneys; and moderate hyperplasia of the spleen. An abscess cavity of the left lung was 6 x 3 cm. and filled with thick creamy pus, and two others in the hilus of the right lung were 1 cm. in diameter. Thick fibrous walls surrounded these cavities. In sections of the liver multiple regions of focal necrosis interrupted the continuity of the cords of cells (Fig. 5). Only a moderate amount of fatty change was present. In the tumor nodules of the lungs the centers were poorly stained if at all. There was no noteworthy change of the spleen. The changes in the kidney were those of a chronic glomerulo nephritis with thickening of Bowman's capsule. Of the cells of the convoluted tubules there was cloudy swelling, and of some there was actual necrosis. In 100 gm. of tissue from the lung, liver, and carcinoma, there were found 0.96, 0.60, and 0.21 mgm. of lead respectively.

Patient No. 3—A male, 40 years of age, complained of loss of weight, weakness, and an enlarging mass of the abdomen for three months. A laparotomy had revealed an extensive carcinoma of the liver. Fifty mgm. of colloidal metallic lead and 52 mgm. of colloidal lead phosphate were injected intravenously at an interval of seventeen days. The hemoglobin on entrance was 80 per cent and just before death was 75 per cent, while the red cell counts were 4,210,000 and 4,150,000, respectively. The anatomic diagnosis included: extensive carcinoma of the liver with metastases to the pancreas, lungs, endocardium, epicardium, left kidney and subcutaneous tissue; hydrops; icterus; and cloudy swelling of the kidneys. The liver weighed 4392 gm. and was infiltrated with tumors varying in diameter from 5 mm. to 22 cm. In the large tumors there was some evidence of softening in the centers. In sections of the nodules of the liver the cells were

Fig. 6—On the left hand are the "healthy" carcinoma cells, while on the right they are distorted by direct injection of colloidal lead phosphate. (High power.)

Fig. 7—At the left are apparently healthy carcinoma cells from the center of a subcutaneous nodule treated only by intravenous colloidal lead phosphate. At the right are altered tumor cells from the periphery of the same nodule. (High power.)

atypically epithelial, with hyperchromatic nuclei and poorly staining cytoplasm. No change attributable to the lead was present. Practically all of the liver was replaced by tumor tissue. During life 0.5 cc. of colloidal lead phosphate (containing 2 mgm. of lead) was injected directly into the center of a subcutaneous nodule of the left elbow, and two days later this nodule and a similar sized one overlying the sternum were excised. In sections of the latter the carcinoma cells were round and appeared "healthy," while in those of the former into which the lead was injected, the cells were markedly distorted into bizarre shapes and were barely recognizable as epithelial cells (Fig. 6).

PATIENT No. 4—A male, age 69 years, had complained of difficulty in urination for eighteen months, with loss of weight and hypogastric pain. By rectal examination a large mass the size of a tangerine, nodular and tender, was felt arising from the prostate gland. During five weeks 280 mgm. of lead phosphate were given in three doses. After the second dose the mass had reduced one-third in size and there was much less tenderness. The hemoglobin fell from 55 to 45 per cent, the red cell count from 3,300,000 to 2,900,000 during the last eight weeks of life. The anatomic diagnoses were: carcinoma of the prostate gland with metastases to the lumbar lymph glands; bilateral hydronephrosis; right bronchopneumonia and serofibrinous pleuritis. There was practically nothing but carcinoma tissue in sections of the prostate gland with the cells arranged in poorly formed alveoli and solid masses. Mitotic figures were common and no degenerative changes were evident. In the liver there was no evidence of damage. In the lung the alveoli of the consolidated portion were filled with an inflammatory exudate. There was moderately increased deposition of pigment in the spleen. By chemical analyses of 100 gram weights of tissues there were: in the liver, 1.93 mgm. of lead; in the sternum, 0.52 mgm. of lead; in the lung, 0.13; in the kidney, 0.14; and in the carcinoma itself, 0.36 mgm. of lead.

PATIENT No. 5—A male, age 69 years, complained of difficulty in swallowing for two years and had had x-ray treatments. Over a period of four weeks 144 mgm. of colloidal metallic lead were administered in three doses. The hemoglobin fell from 80 to 70 per cent, the red cells from 4,500,000 to 2,930,000. An occasional stippled cell was present. The main features of the anatomic diagnosis were: carcinoma of the esophagus with obstruction and metastases to the regional lymph glands; gastrostomy, terminal left hypostatic bronchopneumonia; hypostatic hyperemia and edema of the lungs; long-since surgically removed prostate gland; and slight left hydronephrosis. The wall of the esophagus for 5 cm. of its lower third was thickened up to 15 mm. with firm gray tissue so that the tip of a finger could barely be passed through the lumen. In sections of the esophageal wall the cancer cells were without evidence of degenerative change. In those of the kidneys there was a moderate grade glomerulo nephritis with hyalinization of some of the glomeruli. There was no evidence of change attributable to lead. In sections of the liver and spleen there were no changes. In 100 gm. of sternum, 0.66 mgm. of lead was found by chemical analysis; in a like amount of diaphragm, 0.42 mgm. of lead.

PATIENT No. 6.—A female, age 65 years, complained of vaginal discharge and pelvic pain for six weeks. A hard mass about the cervix and upper half of the vagina was found to extend into the left broad ligament. Deep x-ray therapy was used in conjunction with radium. On entrance the hemoglobin was 70 per cent, the red cell count 3,380,000; just before death the figures were 43 per cent and 3,250,000 respectively. Two hundred and fifty mgm. of colloidal lead phosphate were injected in three doses during the course of five weeks. Three months later 80 mgm. of lead phosphate were given. The anatomic diagnoses included: carcinoma of the urinary bladder, with metastases to the vagina; left hydroureter and hydronephrosis; right nephrolithiasis and pyonephrosis. In sections of the tumor there were small solid masses of epithelial cells free from degenerative changes. In the liver there were slightly fatty change, and a few regions of focal necrosis. There was cloudy swelling of the cells lining the convoluted tubules of the kidneys, and the deposition of pigment in the spleen was moderately increased.

PATIENT No. 7—A female, age 44 years, had had a radical resection of the left breast three and one-half years before for carcinoma, and later subcutaneous nodules were removed on two occasions. In all 340 mgm. of colloidal lead phosphate have been administered intravenously during five months, and x-ray and radium therapy have been used in conjunction.

Marked regression of a large carcinoma of the right breast and of subcutaneous nodules has been observed. In a section of a subcutaneous nodule removed during life which had not been radiated, the carcinoma cells in the center were round and apparently "healthy," while those about the periphery were markedly distorted and similar to those of the nodules previously described into which lead had been directly injected (Fig. 7).

Chemical Analyses

Tissue	Mgm. of Lead Per 100 Gm.	Lead Administered to Patient
Patient No. 2:		
Lung	0.96	252 mgm. of colloidal metallic lead
Liver	0.60	
Carcinoma	0.21	
Patient No. 4:		
Liver	1.93	280 mgm. of colloidal lead phosphate
Sternum	0.52	
Lung	0.31	
Kidney	0.14	
Carcinoma	0.36	
Patient No. 5:		
Sternum	0.66	149 mgm. of colloidal metallic lead
Diaphragm	0.42	

SUMMARY

In a short series of patients where all available means to combat the disease have been employed, including blood transfusion, x-ray and radium therapy, it is difficult to evaluate the results. The following statements seem fair:

1. Marked regressive changes have been noted in certain of the tumors treated by intravenous preparations of colloidal lead.

2. Fatty change of the liver, cloudy swelling of the cells lining the convoluted tubules of the kidneys, and blood destruction are changes fairly constantly associated with the use of colloidal metallic lead.

3. Our observations bear out the statement of Glynn that there is nothing histologically pathognomonic of the effect of lead on tumor cells, but that the naturally occurring regressive changes are intensified.

Santa Barbara Cottage Hospital.

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DISCUSSION

D. Schuyler Pulford, M.D. (Woodland Clinic, Woodland)—The Blair Bell idea of neoplasia is not new. It has been thought for a long time that the non-communistic invasive growth of tumor cells was a food-searching activity, the result of an unsatisfactory environment. MacCarty has clearly described this process of neoplasia in terms of degrees of differentiation, 0°-1°-2°-3°, recognizing the "reserve cell" which has "gone wild" as the start of it all. Many organs have been shown to possess this reserve cell lying in the membrana propria and springing into life on certain stimuli to produce new cells such as in repair when adult functioning cells are destroyed, or for some unknown reason producing a benign neoplasm. Sometimes, perhaps after continued insult of a chronic irritant, a malignant invading metastasizing neoplasm is produced, not by a "reversion," but by an accentuation of the normal growth process.

I mention MacCarty's idea of 0°-1°-2°-3°, of differentiation in neoplasia because it is the principle which enables one to classify all new growths in the way most important to both the patient and the doctor; that is to say, in terms of its degree of malignancy. A new growth with 0 degree differentiation is the most malignant tumor possible; 1 degree and 2 degrees differentiation are the commonly encountered malignant neoplasms. Three-degree type are bnign tumors.

For the sake of clarity in discussing the grading of neoplasms, which I believe is important in the study of the lead treatment of tumors, let me emphasize that this 0°-1°-2°-3° differentiation is applied to neoplasia, the development of new growths, and is not applied to the classification of neoplasms or the grading of tumors after being developed.

The grading of tumors is spoken of in four grades—1, 2, 3, 4—in ascending grades of malignancy according to the differentiation in the cells of the tumor as such. Given a malignant tumor it is graded princi-

pally by a simple mathematical estimation of the per cent of differentiated cells per field.

Now since cell growth is directly proportional to lack of differentiation, and since cell vulnerability to destructive agents is likewise proportional to this, it must be an important factor in deciding the efficacy or failure of lead treatment. And I believe that it will help to clarify matters if the grade of malignancy of the tumors be reported after this method of Broders.

Since we have so little knowledge of the etiology of cancer it is well to concentrate upon its treatment. The latest and most promising line of attack is the Blair Bell-Ullmann colloidal tri-orthophosphate lead treatment. Our knowledge of the effect of colloidal lead upon normal and malignant tissues is still meager, and this accurate description of organs and tissues removed before death and at autopsy commands the attention of all interested in the fight against malignant disease.

It is the experience of the Woodland Clinic in four treated cases, including one autopsy, that the tri-lead orthophosphate solution as made by Bischoff of the Santa Barbara Cottage Hospital is very slightly toxic upon normal cells though destructive to malignant ones and does not produce the marked blood changes of the earlier Bredig prepared colloidal lead solutions. Our autopsy case was a Grade IV carcinoma of the stomach in a middle-aged Japanese man who had extensive recurrent nodules in the abdomen, mediastinal and cervical lymph nodes, and lung and liver metastases. He was given 390 mgms. of colloidal lead during a period of six weeks. The striking features were relief of pain, definite reduction in size of tumors and lack of anemia. Kidney function remained good. There was no jaundice. At autopsy neither kidney nor liver showed gross or microscopic parenchymal change though there were two nodules in the liver, 5 and 4 cm. in diameter, and many smaller nodules in the same organ. The lung metastases were broken down into abscesses. The liver function test done just before death showed a dye retention II on a scale of I to IV after the bromosulphphthalein colorimetric method.

We have under treatment at present, besides an advanced cystadenoma of the ovary with large abdominal metastases, two patients in excellent general condition, one a Grade IV carcinoma of the breast and the other a squamous cell epithelioma of the jaw, Grade III.

Radiation is being utilized in all cases, and it appears to me that an added value of this procedure should be noted. If the lead is concentrated in the malignant tissue secondary irradiation would then be intensified and a greater depth dose could be given.

The excision of metastatic nodules for study during the course of treatment will be valuable, as well as direct injection of colloidal lead into the tumor masses as reported. This paper is, in my opinion, a very important and far-reaching contribution which will be most helpful to anyone undertaking the lead treatment of malignancy. As far as we have gone we agree with the Santa Barbara group and with Glynn that there is nothing characteristic of the effect of lead upon either normal or malignant cells morphologically demonstrable by our present known methods. It would seem that the solution of the problem lies more in the field of biophysics rather than tissue pathology. The liver function test may help in checking the administration of lead up to the point of such marked fatty replacement as described by the authors.

I believe that the Santa Barbara Clinic has proven that their colloidal tri-orthophosphate solution of lead is sufficiently non-toxic to be used safely in the hands of those equipped to follow the chemistry of the patients carefully, and that it should be used earlier in the course of malignant disease. It should especially be used in the Grade IV carcinomas with the patients in good general condition at the time diagnosis is made, because Grade IV cases practically invariably ultimately die of recurrence under the older means of treatment.

I would like to ask the authors how soon and how late kidney damage has appeared in their cases under the administration of their present colloidal tri-orthophosphate lead solution. Our autopsy case received 390 mgms. of lead and showed no kidney change either functionally or morphologically, death occurring two months after the first injection from toxic asthenia. Our breast case has received 153 mgms. in three weeks and is now a month from the first injection and still maintains normal amount of urine and function of kidney.

❦

W. Ophüls, M.D. (Stanford University Medical School)—Doctor Nuzum's paper on the effect of lead upon normal and malignant tissues has interested me very much, because some time ago I made a study on chronic lead poisoning in guinea-pigs. The experiments were carried on by feeding a series of twenty-eight guinea-pigs carbonate of lead in sublethal doses. Some of the animals remained under the influence of lead for more than three years. The most pronounced changes were observed in the blood and the bone marrow. The animals became very anemic, had many nucleated reds in the circulating blood and the severe damage to the bone marrow was indicated by the appearance of megaloblasts in the marrow and in the circulation. The chief lesions in the kidneys and liver were focal necroses of the epithelial cells. In the kidneys they were located in the distal parts of the convoluted tubules and in the liver they were scattered irregularly in the liver lobules. The destroyed cells in both organs were replaced by regenerative proliferation of the remaining normal cells. In course of time the regenerative process became insufficient. This occurred relatively rarely in the kidneys, more frequently in the liver. The result of this insufficient regeneration was a collapse of the tissues in the affected areas. Few small areas of collapse were observed in the kidneys, many large ones in the liver. As a result of this in the late stages of the poisoning the liver was often greatly deformed. Little connective tissue proliferation took place in either organ and the vascular and glomerular changes were insignificant. No thromboses were observed in the blood vessels. The only vascular change which was fairly constant was an increased permeability of the capillary blood vessels which caused the production of aseptic serofibrinous exudates in the serous cavities.

From these experiments it is quite evident that lead is a primary cellular poison to which the red blood cells, also the liver cells, are very susceptible and to a lesser extent the renal epithelium. It is therefore quite possible that lead may have a similar or even more pronounced destructive action on tumor cells. I must confess that, to my mind, the evidence brought forward to support this view is more suggestive than entirely convincing. Central degeneration and softening of tumor nodules is nothing unusual in untreated cases. Spontaneous regressions of tumors are observed from time to time. Histologically it is very unusual to find a malignant growth in which not at least part of the cells are degenerated or actually necrotic. It is only by the comparative observation of long series of cases that Doctor Nuzum's contention, that by the lead treatment the naturally occurring regressive changes are intensified, can be finally substantiated. In the meantime it is certainly desirable that all cases which have been carefully observed clinically and have been subjected to a searching post-mortem examination should be published.

Doctor Pulford's suggestion that particular attention should be paid to the natural degree of malignancy of the tumors treated, is a good one. It should be understood, however, that it is not always an easy matter to make this determination. The primary tumors vary from time to time in the rate of their growth; their metastases sometimes grow more, sometimes less rapidly than the original tumors; each

individual tumor nodule usually has a slowly growing or even stationary center and a more actively growing periphery with varying grades of proliferative activity in between. It is not very practical, therefore, to express the grades of malignancy on a mathematical basis, but it is possible by taking into account the clinical as well as the histological picture to classify them roughly under the headings: very malignant, moderately malignant, relatively benign, and benign.

TRAUMATIC THROMBOSIS OF THE UPPER EXTREMITIES*

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DISCUSSION *by C. Latimer Callander, M. D., San Francisco; Harlan Shoemaker, M. D., Los Angeles; Charles T. Sturgeon, M. D., Los Angeles.*

AN acute thrombosis of the subclavian and axillary veins subsequent to effort has been recognized for forty years, but comparatively few cases have been placed on record. As there have been no autopsies and only a few biopsies, the establishment of indirect traumatism as the causative factor has been left to a forensic discussion of the unsettled theories of thrombus formation in general.

A survey of the literature reveals about fifty cases which have followed unaccustomed activity of the arms. The composite picture which they present is so distinct that the recognition of traumatic thrombosis as a definite clinical entity seems to be fully justified.

A typical case is characterized by Lowenstein as follows: "Following slight or more marked exertion, but without direct injury to the vein, there is a progressive swelling of the arm with pain usually referred to the axilla. With the increase of edema there are evidences of collateral circulation, and cyanosis is of frequent occurrence, although pallor may be present. Palpation of the axilla reveals a hard indurated cord, sensitive to pressure. The development of these phenomena usually occurs without fever and is succeeded by a period of rapid or more often tardy retrogression. This summarizes the history of a typical case of 'thrombose par effort,' 'a spontaneous thrombosis following exertion.'

The effort which produces this type of thrombosis seems to be, in the first place, an oft-repeated or prolonged exertion and, in the second place, one to which the patient is unaccustomed. In this way a sort of chronic trauma is applied indirectly to the vein which is quite different from the acute trauma of contusions and fractures which is applied directly to the vein. Willan's three cases were in athletic men who engaged in heavy labor; Scheppelmann's patient was riding a wild horse; Baum's case was a housewife who had been moving heavy furniture; Rosenthal's were in a woman beating clothes and a child playing ball; Lowenstein's patient carried heavy trays for two hours while waiting on tables; Winterstein's was a weaver who piled heavy bolts of cloth on shelves above his head. My case occurred in a muscular young man "pulling tents" with a citrus fumigating gang. These tents are lifted from the trees by means of long poles and the effort required is extreme, with the arms held high above the head.

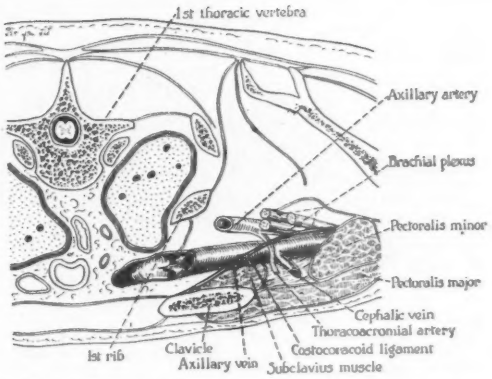

Fig. 1—Upper surface of transverse section at the level of first thoracic vertebra (lower third). Male adult. (Lowenstein.)

The majority of the cases reported have occurred in members of the working class in pursuance of their regular occupation, but called upon to perform some unusual duty, as in the case of the foreman of the tent-pullers taking the place of a sick laborer, or the weaver compelled to hastily pile the heavy bolts of cloth. Certain predisposing factors, such as substernal goiter, intrathoracic aneurysm or tumor, tuberculosis, syphilis, other chronic and acute infections may be present. Regardless of the presence of such predisposing factors it appears that chronic trauma is not incidental but absolutely essential to the production of the variety of thrombosis under consideration. It therefore follows that insofar as the trauma is the result of industrial activity, in all fairness to the injured employee, the lesion should be classed as an industrial accident and as such it should fall within the coverage of industrial compensation.

RÔLE OF INFECTION

Infection has so long been fixed in the minds of the profession as the primary cause of thrombosis that it is difficult to controvert the opinion of Lacene that the lesion is to be explained on the basis of a latent thrombophlebitis of bacterial origin. Most of the cases of thrombosis through effort have not been initiated by chills, their course has not been attended by fever, there has not been leukocytosis and other evidence of infection, and in many instances negative blood cultures have been reported. While Grimalt removed a clot from between ligatures and recovered staphylococcus albus and streptococcus viridens, Scheppelmann incised a thin-walled axillary vein and delivered an aseptic clot. Twenty years ago Welch said, "The problem whether bacteria have led to thrombosis by first invading the vascular wall and setting up an inflammation is not solved by the mere demonstration of their presence in

*Read before the General Surgery Section, California Medical Association, at its Fifty-Sixth Annual Session, April 25-28, 1927.

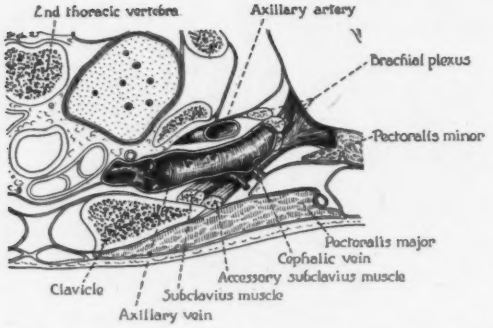

Fig. 2—Under surface of transverse section at level of second thoracic vertebra (upper third). Male adult. (Lowenstein.)

the thrombus." Moreover practically all of the cases of abrupt thrombosis occur in the upper extremity, while it is a well-known fact the thrombophlebitis occurring as a complication of infection practically always is found in the lower extremities.

MECHANICAL THEORY

A study of the various theories of thrombus formation convinces one that traumatic thrombosis may be satisfactorily explained on the basis of Aschoff's mechanical postulates. According to Conner the first comprehensive theory of the etiology of thrombosis was propounded by Hunter and Cruveilhier. They held that the primary condition was phlebitis and the accompanying clot was secondary and incidental. Later Virchow in his classical work on thrombosis and embolism presented a mass of evidence in favor of the view that the thrombosis was the primary and essential process, and that it was brought about chiefly by a slowing of the blood stream from causes which might be either local or general. Then Widal and Vaquez of the French school again shifted opinion to the view that infection plays the most important rôle in the process, and that the primary lesion is inflammation in the vessel wall. In recent years the importance of mechanical factors has again been emphasized in a most convincing manner by Aschoff and the Freiburg school. In mathematical parlance, Aschoff defines thrombosis as "the function of a number of variables" which may arise from three factors, namely, (1) changes in the blood flow, (2) changes in the vessel wall, and (3) changes in the blood elements. Fundamentally these changes are all physical as far as the mechanism of thrombosis as he reproduced it is concerned. The decelerated blood stream, the damaged vessel wall and the agglutinated platelets are essentially mechanical changes. Any one, two, or three of these changes may occur with or without the element of infection.

Welch, who seems to be quoted most frequently by all authors, declares that the factors which govern the slowing of the stream in the veins include "flow from smaller into larger channels, presence of valves, and fixation of the venous wall in certain situations to fascia and bones." The shoulder girdle presents a venous supply which embraces all these factors in a striking combination. Such anatomists as Piersol, Cunningham and Deaver show that the axillary-subclavian vein is a very large and spacious trunk containing one or more valves, receiving several comparatively small collaterals and having a fibrous attachment to the costocoracoid ligament, the clavicle above and sometimes the rib below.

Conner expresses the dictum that "there has been a growing tendency to regard lesions of the intima as of prime importance among the factors concerned in thrombosis." Cadenet concludes that the thrombosis caused by exertion is probably due to a traumatic lesion of the intima determining the coagulation of the blood, and that the circulation is slowed by the forced expiration which accompanies the effort. Rosenthal and Pellow contend that the chronic trauma of muscular effort may "rupture the intima or tear small lateral vessels at the site of the thrombus." When the arm is engaged in severe effort the force of elevated intrathoracic pressure, or expiration, is directed outward through the subclavian vein. The unusual muscular contractions about the veins in the arm direct a peripheral force inward through the axillary vein. The meeting of these opposing forces under the clavicle produces a slowing of the stream at the precise point where the veins present all the anatomic peculiarities which Welch mentions as competent to induce a thrombosis.

ANATOMIC BASIS

In an attempt to discover an anatomic basis for the syndrome of traumatic thrombosis in the upper extremity Lowenstein made dissections of the axilla in thirty cadavers and sagittal sections in six others.[1] In conclusion he says: "It would seem, therefore, that the etiology of thrombosis produced by exertion has a twofold basis: first, ensues a venous stasis or circulatory slowing produced by forced expiration that characterizes effort. This stasis is clearly manifested in the head and neck by cyanosis of the face and the swelling of the jugulars. Secondly, marked abduction (beside the head) or extension (drawing backward) of the arm, probably with lateral rotation, produces a pronounced pressure by the costocoracoid ligament on the axillary vein, with resultant changes in the vascular endothelium sufficient to cause a thrombosis."

The subsequent fate of a thrombus according to Boyd is either absorption or organization. Usually contraction of the fibrin shrinks the thrombus away from the vessel wall, vascular endothelium covers it and the lumen is re-established. Occasionally the blood tunnels through the thrombus which thus becomes canalized. If the lumen is not re-established in these ways the collateral circulation must, through activity, enlarge sufficiently to carry the return flow around the obstruction. A venous thrombus is usually firmly attached to the vessel wall and consequently embolism is rare. The only case of embolism appearing in the literature on traumatic thrombosis is reported by Scheppelmann and followed his attempt at surgical cure of the throm-

bus. Welch says that organization is often well under way in a week and well advanced in two or three weeks.

The treatment of thrombosis in the upper extremities therefore consists of primary rest with the arm elevated for a period of one to three weeks to hasten absorption or canalization. After this massage and elevation are used to encourage collateral circulation. Surgical attack is advised against by all authors, as incision to remove the clot does not prevent the reformation of the thrombus and excision of the vein does not restore the circulation, while either procedure invites pulmonary embolism.

The prognosis as to life is good; as to restoration of function is fair. In a majority of the cases the arm is useful in two or three months, but there remains a certain amount of weakness due to chronic edema which constitutes a more or less permanent partial disability.

CASE REPORT

E. K., workman, age 23, weight 150 pounds. Last confined to bed by scarlatina at age of 11. In January, 1926, had a light cold followed by some transient pains about the thorax, but did not cease work. There have been no signs of respiratory or other infections since. No abrasions or wounds of the hands or arms.

About 3 a. m., August 5, 1926, while overseeing a gang of citrus fumigators patient took the place of one of the tent-pullers who was taken ill. In order to finish the job he worked with unusual vigor pulling the tents from the trees by lifting them at the end of a ten-foot pole, exerting himself to the utmost with the right arm elevated above the head. At the end of an hour he noticed that his right arm was swollen until the shirt sleeve was tight about it. There was numbness in the arm and tingling in the fingers and the weight of the member became oppressive.

During the next ten days the entire arm and shoulder continued to increase in size with some daily fluctuation of tenseness. About August 15 the arm and hand were so tense with swelling that they were painful and he first consulted Dr. John B. Craig of Upland.

Doctor Craig's examination on August 19, 1926, showed that the right arm was four inches larger than the left at the middle of the biceps. The veins about the shoulder were distended, the pressure in the right 140 and the left 125. Temperature and pulse normal. Chest was negative on physical examination and stereoscopic radiograms revealed no bony defects in the shoulder girdle, no goiter or other intrathoracic tumor and normal heart, vessels, diaphragm and lungs. Diagnosis of traumatic thrombosis of the subclavian vein was made.

September 9, 1926, when I first saw the patient, the right arm was three inches larger than the left. The edema about the shoulder extended backward over the scapula and forward to the nipple. There was no swelling in the neck. The veins under the clavicle were greatly distended, and a cord was palpable in the axilla and down the arm to the middle of the biceps. The pulse was equal in both wrists and the blood pressure in the right arm was 140 and in the left 120. There was no adenitis. Blood examination: red blood cells, 4,700,000; white blood cells, 7000; polymorphonuclears, 54 per cent; mononuclears, 30 per cent. Wassermann negative. Urinalysis negative. Pulse and temperature normal.

The patient was put to bed for a few days with the arm elevated above the head and maintained in this position by a balanced weight and pulley. After this he was allowed about in the daytime, using the arm lightly, and keeping it elevated at night, for about three weeks. Gradually the edema and the distension

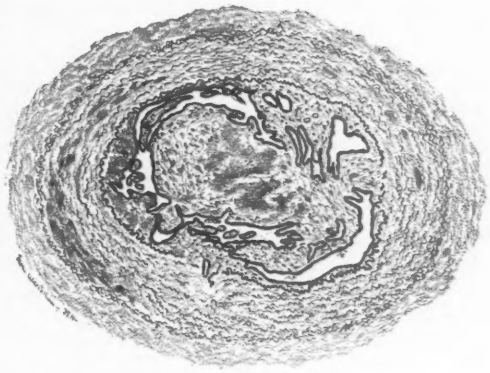

Fig. 3—Organized thrombosis in a vessel canalized by clefts relined with endothelium (MacCallum).

in the collateral veins has become less marked indicating that the lumen of the subclavian vein is being restored. January 15, 1927, the right arm measures only one inch larger than the left, and the pressure is 120 against 115 in the left. He has returned to ordinary farm labor, but often has to resort to elevation at night to reduce the swelling following a day's use. There has not been acute pain, but from the first, stiffness, tightness and heaviness in the arm have been the subjective symptoms.

REFERENCE

1. P. S. Lowenstein: Thrombosis of the Axillary Vein, J. A. M. A., 82; 854, 1924.

DISCUSSION

C. Latimer Callander, M. D. (240 Stockton Street, San Francisco)—I am delighted to have the opportunity of discussing Doctor Swindt's admirable paper on this, one of the rarer varieties of thrombosis, partly for the chance it affords me to congratulate the author on his splendid presentation of the subject, and also for the chance it gives briefly to mention two cases of a similar sort which have come to my attention within the past two years.

Each of these lesions arose in young men following exceedingly violent and sustained work. Both occurred in the upper extremity. One man felt the pain which initiated the thrombosis after prolonged hammering in a strained position with his arm above his head. The other had his onset in connection with continuous pulling at a wire cable in line of his duty about an oil derrick. In each instance there was pain in the upper extremity, particularly about the shoulder, and the sense of weight in the arm was severe and of considerable duration. The swelling and tenseness of the arms and forearms persisted until a complete collateral circulation about the basilic and cephalic networks of veins became established.

As the arms decreased in size the strength gradually returned, although I am unable to state whether total restoration of power occurred with the return of the size of the extremities to normalcy. While these patients remained under my observation most of the blood of the extremities was returning by the collateral paths, an indication that in the several months since onset the deep thrombosed veins had not become canalized.

The conditions of each of these men was considered compensable, but I do not know the degree of permanent disability rating, if any, that each injury imposed. The return of power and the diminution of the edema noted during the period of observation justified the opinion that no permanent disability judgment would be necessary.

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Harlan Shoemaker, M. D. (521 Bank of Italy Building, Los Angeles)—Doctor Swindt's paper brings up

the subject of thrombophlebitis. It is very much up to date and gives one an opportunity to speculate on this very academic question.

If we knew more of the processes of life itself, we should then be able to tell exactly what produced thrombosis. Thrombosis in the vessels is so unexplainable that it seems an act of God. One individual is so unfortunate as to have coronary artery thrombosis and sudden death ensues. Another suffers thrombosis in the vessels of the leg, and either suffers chronic phlebitis or loses the leg. The part that chemistry plays in thrombosis has never been fully valued. Doctor Swindt's patient undoubtedly had a sufficient quantity of cyanid to have aided materially in the alteration of the chemistry of the blood. He had just relieved a fellow worker overcome from the gas.

The presence of bacteria does not necessarily produce a thrombosis, but the very highly toxic substance of a very complex chemical naturally excreted by these bacteria or produced by their metabolic activity will produce a very prompt thrombosis. That delicate irritating substance that releases the thrombo plastin, which is the foundation of the blood-clot, is still an unknown substance in the domain of physiological chemistry.

From an academic standpoint such a vital substance is very near the life force itself. When we know more what life is blood-clots will disappear.

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CHARLES T. STURGEON, M. D. (1136 West Sixth Street, Los Angeles)—I wish to congratulate Doctor Swindt upon the admirable way in which he presented the subject of traumatic thrombosis of the upper extremities.

This is an extremely rare condition, but nevertheless occurs often enough to cause much speculation as to the cause. It is unquestionably true that thrombosis can be caused by trauma without any infection, but as to why this should occur we are very much at loss to explain. As to the treatment, I believe the conservative treatment is the best. Occasionally a thrombus can be removed successfully, but surgery should not be attempted unless conservative treatment has failed.

The Child's Chance—In the days of Queen Anne of England it was unusual for a baby to live. Of seventeen children that were born to the queen herself only one survived more than a year.

That was centuries back, but infant mortality declined comparatively slowly until a few decades ago.

Birth rates had to be high if nations were not to have a stationary or diminishing population.

Of every 1000 babies born in the United States now only 66 die at birth.

Medical education is the answer. Physicians know more and know how to apply their knowledge. Parents are better informed. So the average age span lengthens.

In Kansas City last year 3000 volunteer workers cooperated with the local children's bureau in a campaign to improve juvenile health. Forty-nine thousand two hundred and eighteen visits were made in 26,803 homes. Treatment for defects was given in 10,216 cases. Letters of advice were sent to the mothers of 4434 new-born babies and the bureau's dietitian made 4790 personal talks on infant feeding.

That is an index to efforts in hundreds of localities.

The conquest of disease and the banishment of ignorance and superstition have become cooperative responsibilities. Such undertakings no longer are regarded as an intrusion into private affairs.

More mothers keep their children, are happy in their possession, and are less anxious as to the menace of sickness. These are not the least of the comforts of the twentieth century.—*Collier's Weekly.*

VISION IN RELATION TO INDUSTRY*

By E. M. NEHER, M. D.
Salt Lake City, Utah

THE condition of the eyesight of employees is the most important factor affecting the output of the industries of our country. Until very recently it has received little consideration other than tests for the acuity of vision and color blindness by the railroads and a few of the larger manufacturers. Those corporations that recognize their duty in determining and conserving the vision of the employees not only become contributors to the health and upbuilding of society, but find production increased, the quality of workmanship improved, less material wasted, fewer accidents occurring, greater individual effort made possible and, above all, a better morale, greater comfort and happiness among the employees when off duty and when at work.

Physicians and an increasing number of employers are unanimous in the opinion that the eyesight of the workmen should be conserved, but it is difficult to find a satisfactory method of accomplishing this. In my opinion the methods should include: (1) Legislation. (2) Vision testing and proper correction of defects. (3) Protection of eyes against injuries. (4) Education.

LEGISLATION

Intelligent legislation—fair to both employee and employer—is the primary factor in inaugurating safety measures. This is accomplished best by establishing an industrial commission which shall be given full power to require the necessary accident reports, to make and enforce safety measures, and to administer equitable compensation, rather than to wait on the slow wheels of a political legislature which meets once in two years.

VISION STATISTICS

Proper eye examinations should be made of new employees and frequent re-examination of old ones. Systematic testing of vision has not been generally done, as is shown by the most accurate statistics I was able to obtain. The Eyesight Conservation Council of America sent inquiries to a selected list of 750 companies and commercial establishments having a safety and a welfare department. Replies were received from 250 companies some of which were too meager to be useful, and only 170 reports that could be analyzed. Of this number ninety-five companies stated eye tests were given, but only twenty-one companies reported periodic examination. Forty companies, representing twenty different kinds of industries, located in various parts of the United States, gave the result of eye examinations of 204,817 employees. The tests used ranged from the most superficial to the more thorough, with an average of 44.3 per cent with defective vision. The Buick Motor Car Company found that 56 per cent of applicants for employment have subnormal vision, while 48.5 per cent of the 60,000 Ford employees

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*Read before the Pacific Coast Oto-Ophthalmological Society, Spokane, June 6-8, 1927.

TABLE 1—UTAH STATE INDUSTRIAL COMMISSION

REPORT OF NINE-YEAR PERIOD ENDING JUNE 30, 1926

		Compensation	Medical	Total
Total number of accident cases	101,463	$5,547,107.00	$1,514,638.00	$7,061,745.00
Total permanent disability	19*	.....	.....	285,000.00
Total permanent disability, eye cases	16†	.....	.....	245,000.00
Total permanent partial disability	1,359	1,019,317.00	665,555.00	1,684,872.00
Total permanent partial disability, eye cases	222	.....	.....	.....
Partial loss of vision	62	36,681.37	8,558.00	.....
Entire loss of vision	87	141,214.45	19,496.09	.....
Loss of eye (enucleation)	73	128,096.60	14,863.73	348,913.24
Temporary eye injuries (estimated)	7,321	7,321.00	21,963.00	28,284.00
Total number of eye cases	7,560, with a total cost of			622,197.24

* Estimated cost, $15,000 each.
† Estimated cost, $15,000 each.

examined had lowered visual acuity. Seven companies who made a more thorough examination of the eyes of 12,800 employees found 72 per cent with errors of refraction. This study and report of examination of nearly 300,000 employees covers the largest group that has ever been studied, and the results are probably a fairly accurate statement of the defective vision among the 42,000,000 persons gainfully employed in the United States.

The survey showed that in the group of 204,817 examinations only 19.6 per cent were wearing glasses and that many of these corrections were wrong. One company found two-thirds of the glasses which the employees were wearing, to be incorrect. In the report of seventeen companies, employing 83,825 persons, less than 10 per cent were wearing glasses, while 49 per cent had defective vision. A concrete example of corrected vision improving production is shown by the Whiting and Davis Company of Plainfield, Mass., who increased the output of their factory 25 per cent after they had carefully corrected errors of refraction among the employees.

The Public Health Service made a series of visual acuity tests at different ages, and found the percentage of persons with a normal vision increased from six to eighteen years of age and then gradually decreased to forty-five, after which there was a rapid decline due to lowered accommodation, sclerosis of the crystalline lens and pathology in the fundus incident to advancing years. Increasing age especially lowers the vision for close work, and in all examinations, both the distant and the close vision, should be recorded.

WHY VISUAL EXAMINATIONS ARE NEEDED

While we have no statistics showing the definite relation between defective vision and accidents, we may be sure that for our efficiency and safety, good vision both central and peripheral is the most important of our special senses.

The presence of defective vision, its causes and remedies can be determined only by competent physicians. Each worker is a unit of the great industrial machine, and defective vision endangers the safety of fellow workers also. His mental and physical fitness, which necessarily includes proper vision for the position for which he has applied, should be determined by examination. Some employees and labor organizations are adverse to physical examinations. Nothing is more absurd. Such objectors are enemies of right and justice and the safety of fellow workmen.

The visual requirements, both with and without glasses, necessary for the different classes of positions are not here being discussed. It is a great injustice to an applicant for the employer not to take into consideration his vision as corrected by glasses. However, since many State Industrial Commissions do not reckon the acuity of corrected vision when naming the amount of compensation, the employer may not want to employ a man with subnormal vision. A rule is said to be a poor one which will not work both ways. Since it is shown by statistics quoted in this paper that from 44 to 72 per cent, depending upon the thoroughness of the test, have defective vision without the use of glasses, is it right and just to employer or insurance carrier to assume every injured eye had normal vision previous to the accident and to make the compensation award on this basis? As example, in my own practice, a man forty-eight years of age had a small foreign body embedded in his cornea. At the time of removal it was noted that his vision was very low in the injured eye. Examination of the fundus showed an old rupture of the choroid. The man denied any previous injury until the x-ray showed twenty-five small metallic shadows embedded in the skin of the face. This he then admitted resulted from an explosion years previous to his present employment, at which time the choroid was undoubtedly injured. Should the man be paid for the loss of his eye on account of the recent foreign body in the cornea? It is just as reasonable for a man who receives a scratch on the stump of a leg which was shot off during the World War to be compensated for the loss of his limb on account of the recent injury to the stump.

EYE PROTECTION

The protection of the eye against hazards should be a most important factor of the safety

department of every industry. A great many of the eye-protection devices must be worn by the workmen in the form of glasses or goggles. The type to be used depends on the nature of the work to be performed. The National Safety Code for the Protection of the Head and Eyes of Industrial Workers, published in No. 2 of the Bureau of Standards Hand Book Series, divides the different operations or processes in which it is necessary that the operator be given protection for the head and eyes into nine groups, each of which requires a protector having distinctive features. These types were selected as the result of the experience of a number of physicians, safety engineers and goggle manufacturers. Many laborers object to goggles, alleging inconvenience and discomfort. These supposedly objectionable features can be largely overcome by properly fitting and by having refractive errors ground in the glass. Naturally if the workman has a defect of vision, unrecognized but handicapping to some degree, the plain glass would apparently serve to emphasize this defect. Correct refraction in the glass solves this objection. Properly corrected vision lessens headaches and nervous irritability, lessens loss of time and energy and obviates eventual loss of sight.

The absence of proper eye protection in industries is shown by the great number of eye accidents reported. The National Safety Council estimates 250,000 eye injuries annually. In California, during the four-year period of 1917 to 1921, of the 9328 permanent injuries reported 13 per cent involved the eyes. The American Foundry Association reports that 20 per cent of all non-fatal accidents occurring in foundries are eye injuries, of which 28 per cent resulted in the loss of one eye and 10 per cent in the loss of both. This same report states that 95 per cent of the accidents could be prevented by the use of goggles and other protective devices.

There are far too many eye accidents in the industries of Utah. In both the metal and coal mines we find the men especially adverse to wearing goggles, stating that perspiration and air currents cause the lenses to fog. These and other objections can be overcome by using the correct type, by wearing a sweat-absorbing band around the forehead, and coating the lenses with one of the various substances used to prevent the glass from fogging. The use of the proper eye-protective devices by the employees of Utah would reduce eye injuries 90 per cent. That this would be no small item is shown by statistics I was able to obtain from the State Industrial Commission through the kindness of the secretary. (See Table 1.)

In making a summary of the figure given in Table 1, we find that during the nine-year period of the existence of the Industrial Commission of Utah, ending June 30, 1926, there was a total of 101,463 accidents, with a paid compensation of over five and one-half million dollars and medical fees exceeding one and one-half million, making a total cost of over seven million dollars for the accidents. In this number are included nineteen totally permanently disabled, of whom sixteen (84 per cent) have eye injuries with an estimated cost of $15,000 each, or a total of $245,000. There are 1359 persons partially permanently disabled, 222 (16.3 per cent) of them with eye injuries, costing in compensation and doctor fees nearly $350,000: 21 per cent of the total cost expended for this class of injuries. In addition there are 7321 temporary eye disabilities, at a cost of $28,000. This makes a total number of eye injuries 7560 (7.5 per cent) and costing nearly $625,000, or 8.7 per cent, of the total amount expended by the commission. Yet this huge sum is insignificant when compared to the great amount of suffering, serious disability and great loss, not only to the unfortunate employee, but also to those depending upon him for support and comfort. How appalling these facts are when we realize that nine out of every ten of these accidents could have been prevented by enforcement of proper safety measures.

EDUCATION

Great possibilities for elimination of the destruction of vision lies in education. Educate the state to realize its humanitarian and economic obligation by establishing and enforcing adequate safety-first measures. Safety inspectors should be of sufficient number to supervise the small plants as well as the large. They should not only be capable of knowing their duty, but should have the temerity necessary to enforce safety measures.

PROTECTION AGAINST INJURY

The management of industries should be instructed in the economic value of eyesight conservation. Every official should be on the alert and willing to provide necessary safety appliance to protect the eyes of their employees. They should appreciate that every dollar intelligently invested in safety devices means a saving of many dollars in compensation and a continuation of the uninterrupted service of valuable employees.

Education of the employees, especially of the so-called "hard-boiled" type and the ignorant laborer is difficult, but when all the companies require the observance of safety measures these types will soon fall in line. The following suggestions may be helpful: Bulletin boards should be placed where men frequently see them, and when necessary the bulletins should be printed in other than the English language. The most effective bulletin photograph taken is made from some experience within the plant, for example, a photograph of a fellow workman wearing a pair of safety goggles which prevented injury to his eye. Besides this place a contrasting picture, with appropriate description, of an unfortunate man who lost an eye because he did not wear the proper protection. On these bulletin boards can be placed warnings: warnings against the danger of infection from allowing a fellow workman to remove a foreign body from his eye with a match or a soiled handkerchief; warnings against danger to

the eyes of an observer who watches an electric welder or cutter at work.

Safety bulletins may be posted, such as:

"The man who loses one eye sometimes wears the other out looking for a job."

"Once we knew a man who could not see the need of wearing goggles and now he cannot see the goggles."

"Two good eyes are all you have. Save them."

In conclusion, the science of human rehabilitation has developed artificial hands, arms, and legs which can do almost anything the human members can do, but no one had developed an eye that can see, nor do we even dare to predict that a day will come when it will be possible to replace the human eye with one that is capable of interpreting rays of light. This fact alone makes the protection and conservation of vision in industry a most important subject.

Boston Building.

RHEUMATIC ENDOCARDITIS IN CHILDREN: ITS DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS *

By A. J. Scott, M. D.
Los Angeles

Discussion *by Alfred H. Washburn, M. D., San Francisco; Robert Ewart Ramsay, M. D., Pasadena; Andrew J. Thornton, M. D., San Diego.*

IN considering this subject we must remember that rheumatism is essentially a disease of childhood, usually occurring after the age of two. White [1] reports several cases under two years in his Boston series. But these only call our attention to the fact that this disease *may*, though it does not often, occur under this arbitrarily set age period. Hence when a murmur is heard over the heart at this early period, rheumatic endocarditis must be considered and a careful history taken and other physical findings sought.

The attack may be an acute one, or an acute exacerbation of a chronic affection, or an old lesion.

There is usually a history of a preceding or an associated rheumatic attack with its painful joints and temperature, or an accompanying or preceding attack or attacks of chorea, or tonsillitis with or without enlarged tonsils and enlarged cervical glands.

PHYSICAL FINDINGS

The physical findings are divided into those of the acute, the chronic and the decompensation stages.

(a) Those for the *acute* are: (1) Temperature increase. (2) Associated arthritis, tonsillitis, or chorea. (3) Precordial pain, which may or may not be present, depending upon the amount of carditis. There may or may not be a pericardial friction rub present. (4) Increased pulse rate. (5) An increased area of cardiac dullness. (6) The presence of a murmur, its location and transmission. In acute attacks the murmur is usually limited to the mitral valve, is systolic in time and transmitted to the axilla. The presystolic blow of mitral stenosis is rarely heard in early childhood, as the scarring of the valve and its subsequent contraction takes time. It is essentially a murmur found in older children. (7) The associated symptom of rheumatism, such as subcutaneous nodules is rare in our climate. Petechia or purpuric spots, however, may be found in very septic children. (8) The leukocyte count is usually increased. (9) The spleen may or may not be enlarged, depending upon the severity of the infection and the duration of the disease.

(b) For *chronic* cases the physical findings are: (1) The detection, or absence, of thrills over the precordium. (2) The type of cardiac impulse, whether or not it is heaving as in marked hypertrophy of the heart muscle. (3) The location of the apex. If it is inside the midclavicular line it indicates no hypertrophy of the left ventricle; if outside this line it shows an increase in the size of the heart. (4) The type of the pulse, whether it is rapid and thready, or full, or of the Corrigan type as seen in aortic regurgitation and palpable even over the peroneal arteries in the ankles. (5) The detection, location and transmission of a murmur or murmurs. (6) The six-foot x-ray plate is valuable in checking the physical findings. The teleroentgenogram shows particularly the protrusion backward of the heart on the spine. The history of chronic cases is most important.

(c) In the *stage of decompensation* where the infection has so damaged the heart muscle that it cannot function properly even when carefully treated, we have the symptoms and signs of: (1) Dyspnea, especially on exertion. (2) Cyanosis. (3) Increased area of cardiac dullness. (4) Edema of lower extremities. In advanced stage anasarca with râles in the lungs, enlarged liver of passive congestion, and all the distressing symptoms of cough, restlessness, insomnia, and loss of appetite occur. (5) The pulse is usually rapid and thready with more or less irregularity. (6) Murmurs may be heard at all valves and there may be even a typical embryocardia. (7) The x-ray shows the heart is markedly enlarged.

DIFFERENTIAL DIAGNOSIS

We must rule out congenital lesions and functional or extracardial lesions and the symptom complex seen in certain cardiac neuroses.

From Congenital Lesions — (1) There is usually an absence of history of rheumatism although we must remember that children with congenital heart lesions may develop rheumatism and acute endocarditis. The same applies to tonsillitis and chorea. (2) The history of more or less cyanosis from birth. The same applies to clubbing of the fingers and toes. (3) There may or may not be a palpable thrill to the left of the sternum in the second or third intercostal spaces. (4) The murmur is usually harsher, louder, and may be transmitted all over the chest rather than in any one direction. (5) The area of cardiac

* Read before the Pediatric Section, California Medical Association, at its Fifty-Sixth Annual Session, April 25-28, 1927.

dullness is not increased, in contradistinction to that of a lesion of infective origin with a murmur of the same intensity. (6) These murmurs are usually basal. (7) The teleroentgenogram gives a characteristic picture.

From Extracardial Murmurs—These are usually systolic in time and are rarely transmitted. They change or disappear with change of position.

They are affected by respiration, that is, they may be made to disappear on inspiration or expiration and are usually apical. These murmurs are frequently found in undernourished children, where there may be more or less anemia, or they may be found in the rapidly growing child or in one who is very active or vigorous physically. Such instances seem to be due to purely muscular contraction. These sounds frequently disappear after exercise or when the heart rate is speeded up.

From the Neuroses—Here are certain subjective symptoms seen in almost any child who is hampered by an overanxious mother or nurse, or by a medical adviser, who, having detected a slight, purely functional or extracardial murmur, has ordered a restriction of physical activities and so subjected a child, otherwise unhandicapped, to a life of more or less invalidism. These symptoms may be one or more of the following: dyspnea; palpitation; precordial pain, especially after exercise, frequently due to gases in stomach or bowels; dizziness, frequently from the same cause; fainting, seen often in hysterical girls, especially if they are constipated; paresthesias—hysterical in origin; choking; nervousness; fatigue; irregularity of the heart.

To determine cases of neuroses the history is most important and next in value is the physical examination. In these cases no murmur of organic origin is found, only an extracardial or so-called functional one. The exercise tolerance test, x-ray, and electrocardiograph are confirming aids.

TYPES OF THE MURMURS

The vast majority of organic lesions in childhood are (1) mitral regurgitation—transmitted to the axilla, with increased heart dullness outside of the midclavicular line. (2) Mitral stenosis in older children and young adults where the scar of the mitral valve has contracted—the precordial murmur and its accompanying thrill palpable in the third or fourth left intercostal space. (3) The most rarely found murmur is that of aortic regurgitation with its palpable pulse in the ankles, Corrigan type in the radials, pistol-shot sound over the arteries, hypertrophy of the left ventricle and harsh diastolic aortic murmur transmitted toward the apex.

In conclusion make a diagnosis on consideration of age; a careful history of an infection; careful physical findings, and then, when possible, confirm by x-ray and teleroentgenograms. But use eyes, ears and finger, common sense and thought.

1401 South Hope Street.

REFERENCE

1. White, Paul D.: The Incidence of Endocarditis in Earliest Childhood, American Journal Disease of Children, Vol. 32, No. 4, October, 1926, p. 136.

DISCUSSION

ALFRED H. WASHBURN, M.D. (University of California Hospital, San Francisco)—There are a number of points in Doctor Scott's paper on the diagnosis of rheumatic endocarditis which merit special comment. I shall take them up in the order in which they occur.

The symptom of precordial pain is not a common complaint in children, so that when it does occur in an acutely ill child it is significant. It is worth noting that this cardiac pain mentioned by Doctor Scott as a sign of acute carditis is frequently referred at first, not to the precordium, but to the abdomen. During the past four years I have observed three such patients from whom normal appendices have been removed at the onset of an acute carditis.

It is interesting to note that the subcutaneous nodules are rarely found in southern California, for their occurrence in the San Francisco clinics is by no means unusual. In fact the well-known observations concerning these nodules, published by the late Doctor Bronson, were made at the University of California clinic. There can be no doubt that climate plays a large part in many of the manifestations of rheumatic fever.

The differentiation of congenital from rheumatic lesions may at times be very difficult, for cyanosis and clubbing of the fingers may be absent. The area of cardiac dullness may be increased. Nor can I agree with Doctor Scott in his description of the murmurs. Those from a congenital lesion, while they are almost always systolic in time, may be of any degree of loudness or harshness, may be localized, transmitted only in one direction, or generalized. Pulmonary stenosis and a patent interventricular septum, the two most common lesions, frequently produce murmurs whose point of maximum intensity lies between the sternal margin and the apex. Such murmurs may be indistinguishable from those of organic lesions. Two characteristics of murmurs caused by congenital lesions which may materially aid in making a diagnosis are: (1) During repeated observations the murmur will be found to remain almost constant in its quality, locality and intensity; (2) the murmur is usually dissociated from the sounds and does not even partially replace the first sound as an organic murmur of equal intensity is almost sure to do. Unfortunately neither the x-ray nor the electrocardiograph will give us sure proof of the congenital origin of any given cardiac abnormality, valuable as they both are as aids to diagnosis.

Doctor Scott gives very little space to the differentiation of organic from functional murmurs. He disposes of these latter under the heading of "extracardiac." But surely there is a whole group of functional murmurs which are due to abnormalities within the heart even though there is no organic lesion. The mitral regurgitation caused by a relative insufficiency as in a case of severe anemia illustrates well this type of functional murmur. The frequency of such murmurs associated with nutritional disturbances, chronic infections and the like, may easily be demonstrated in any children's clinic. The problem of differentiating such murmurs from those caused by a damaged mitral valve may be a most difficult one, necessitating a most careful consideration of all the factors in the history and physical examination, including the tolerance of the heart to exercise. Sometimes it may be impossible to make a diagnosis until the physician has been able to observe the result of removing such

complicating factors as chronic infection, anemia, or malnutrition.

The cardiac neuroses which Doctor Scott has discussed so completely might well be included under the heading of "functional disorders." In this instance the primary trouble consists in an instability of the nervous system. Thus we see that disorders in almost any other system of the body may be reflected in abnormalities of the heart. These must be clearly distinguished from those cardiac disturbances due to organic lesions.

❦

ROBERT EWART RAMSAY, M. D. (65 North Madison Avenue, Pasadena)—When we speak of rheumatism we invariably include arthritis in the clinical picture, and usually we emphasize this element to the point where the heart is just one of the organs affected, even if it is the most important organ sharing in the infectious process. Doctor Scott devotes too little attention to arthritis in view of the fact that his title and introduction indicate that this is an inseparable part of his thought. As a matter of fact, arthritis and endocarditis may have a common focus of infection and a single causative agent and may exist together or separately. Since it is so difficult to accept a history of past arthritis, and equally difficult to evaluate a present arthritis, the real emphasis is on the causative agent and its effect on the heart. Infection of the tonsils, rather than arthritis, is commonly associated, and it is the study of diseases of the throat, rather than of the joints, which has helped to illuminate the question of endocarditis.

The existence of heart murmurs in the malnourished or rapidly growing child is deservedly emphasized in this paper. A diagnosis of heart disease is too often made, with the result that the child and its parents develop neuroses. I have in mind a young girl who was greatly incommoded and whose parents were much worried by such a diagnosis which might have been obviated if the physician who was responsible had known the normal behavior of a child's heart and had applied a few simple measurements and tests.

Doctor Scott has presented his subject in terse, forcible form. Clinical experience is evident in every line. It constitutes a challenge to keener observation and more accurate diagnosis.

❦

ANDREW J. THORNTON, M. D. (3235 Fourth Street, San Diego)—In the discussion of heart disease in children we should not limit consideration to the endocardium. One's mind should be open to the possibility of associated myocarditis or even a pancarditis. In fact I believe that the heart muscle is more often simultaneously involved with the endocardium than is generally supposed. Also in many cases of pericardial scratching sound without pain may be heard which is most likely evidence of a pericarditis.

We see very little frank rheumatism in San Diego, but much of the vague joint pains, leg ache, and complaint of pain in the "stomach." I have in mind one case in which the abdominal symptoms were so prominent that the heart condition was overlooked for several months.

Increased pulse rate and a persistent rise of temperature in the presence of infected tonsils or nasopharynx, even without demonstrable enlargement or heart murmur, should make us suspect very strongly a beginning heart disease. These early cases are the important ones to catch, as they are so easily overlooked. I believe that many of the so-called primary infections are in reality second attacks.

Differential diagnosis of organic heart disease from congenital or functional I agree is often very difficult or even impossible without observation over a period of time, but when there are reasonable grounds for suspecting infection we should not be afraid to run the risk of a little worry on the part of parent or patient. Heart disease is such a serious thing that the whole truth should be known by the parent and some responsibility put upon the patient when old enough.

❦

DOCTOR SCOTT (closing)—The pertinent comments on this subject by Doctor Washburn are well taken. It was not the intention in this article to enter too deeply into differential diagnosis except as was necessary to bring out the essential points. No article is so complete but that a discussor can add something of value if he is observant; consequently, I appreciate Doctor Washburn's remarks.

I wish to thank Doctor Ramsay and Doctor Thornton for their comments, but wish again to remind them that this paper was one of a symposium on rheumatic endocarditis, and that the other papers took up some of the details purposely omitted or only lightly touched upon.

CONSERVATION OF HEARING AND THE HARD-OF-HEARING CHILD*

By FRANK S. RODIN, M. D.
San Francisco

DISCUSSION *by Isaac H. Jones, M. D., Los Angeles; Vern O. Knudsen, Ph.D., Los Angeles; William C. Hassler, M. D., San Francisco; John A. Bacher, M. D., San Francisco.*

ONE of the most serious handicaps to any child is an impairment of hearing. Even a moderate degree of deafness is often an obstacle in the education of the young. One of the chief causes of retardation and inattention in class work is difficulty in hearing.

The term deaf child applied to one who has a moderate loss of hearing is an unfortunate one; the word "deaf" unduly alarms the parents and the child. These children are not deaf; they are hard of hearing, and should be called hard-of-hearing children.

A diminution in the acuity of hearing in early life, if not corrected, often progresses to a marked loss of hearing in later years. The question of the hard-of-hearing child and the rapid method of examining the hearing of children were discussed by Newhart[1] and by Fowler and Fletcher[2] at the American Medical Association annual meeting held at Dallas in 1926. The methods previously used, namely, the "watch-tick," "whispered

Fig. 1—The phonograph audiometer.

voice," and the tuning forks, are very unsatisfactory and consume too much time. The phonograph audiometer (Western Electric Company, 4-A) (Fig. 1) offers a means by which a large

* From the Division School Health Inspection, Department of Public Health, San Francisco.

Read before the Eye, Ear, Nose, and Throat Section, California Medical Association, at its Fifty-Sixth Annual Session, April 25-28, 1927.

Fig. 2—Testing of children.

number of individuals may be tested in a short time. Briefly stated, the instrument consists of a phonograph and records through which speech vibrations, consisting of numbers, are conducted to the telephone receivers attached to the hearers' ears. Forty persons can be tested at one time. Fig. 2 shows arrangement of such a group. Blank forms (Fig. 3) are distributed to the children on which they write numbers as they hear them. The forms are then compared with master sheets. For a fuller description of this instrument one should refer to the papers by Newhart and by Fowler and Fletcher.

EXAMINATION METHOD

The San Francisco Board of Health, in cooperation with the Board of Education, has undertaken a systematic survey of the hearing of school children, from grade four through junior high school. This will include the children from the ages of 9 to 16 years. Grade four was chosen as a starting point because the children of that age are old enough to cooperate with the examiner.

A technician, supplied by the Board of Education, using the phonograph audiometer, tests not only the children of the above grades, but also those children of the lower grades who, in the opinion of the principal or teachers, have some difficulty in hearing. Those children who have a loss of nine or more sensation units in one or both ears are retested. The children who on a retest still show a loss of nine or more sensation units in one or both ears are examined by the Board of Health otologist, who makes such tests as he thinks are necessary for the proper diagnosis of the child's ear condition and records them on the back of the blank form used by the child (Fig. 4). The otologist examines the children with two ideas in mind: first, to discover the cause or causes producing loss of hearing; and second, to find children with such impairment of hearing that they are in need of lip-reading instruction. With the first type of children, the parents are notified by a card (Fig. 5) calling attention to their child's correctable defect. The names of children who need lip-reading instruction are given to the Board of Education. A record is kept of the children who have a loss of hearing insufficient to justify lip-reading instruction. These children are retested after a year's time. It is the object of the Board of Health to test all the school children every two years.

Fourteen grammar schools and three junior high schools have been examined, consisting of 3154 boys and 3068 girls, a total of 6222 children. Of these 1064 children, or 17 per cent, showed a loss of nine or more sensation units in one or both ears. On retesting these children, only 533, or 8.5 per cent, showed a loss of hearing of nine

DEPARTMENT OF PUBLIC HEALTH, SAN FRANCISCO, CALIF.

DIVISION SCHOOL HEALTH INSPECTION **HEARING TEST REPORT**

NAME _____ **AGE** _____

SCHOOL _____ **GRADE** _____ **DATE** _____ **19**____

HEARING LOSS	RIGHT EAR 1	2	3	4	LEFT EAR 5	6	7	8	HEARING LOSS
30									30
27									27
24									24
21									21
18									18
15									15
12									12
9									9
6									6
3									3
0									0
—3									—3

HEARING LOSS (left) HEARING LOSS (right)

Any history of ear trouble? _____

Fig. 3—Blank form for use by child.

or more sensation units in one or both ears. These children and others who gave a history of a recent ear condition were examined by the otologist, a total of 617 children.

CORRECTABLE DEFECTS

The following correctable defects were found: Hypertrophied tonsils and adenoids, 46; postnasal discharge and nasal obstruction, 6; discharging ears, 35; impacted cerumen in one ear, 42; impacted cerumen in both ears, 28. Total number of defects, 157.

This is 2.5 per cent of all children tested and 25 per cent of those examined by the otologist. To this list of defects should be added drums with marked retraction, large dry perforations, and granulations, which may give under treatment an improvement in hearing.

There were 208 notification cards sent to the parents. Ninety-nine children were referred for lip-reading instruction, that is, 1.6 per cent of all children tested and 17 per cent of the children who had a loss of nine or more sensation units in one or both ears.

It is unnecessary to discuss fully the relation of the defects found to the loss of hearing. The close relation between hypertrophied tonsils and adenoids to impaired hearing is well known to all otologists. The same relation exists between impaired hearing and postnasal discharge and nasal obstruction.

Although thirty-five children with discharging ears are reported, the number is really much

Date..... 19.....

Complaint .....

.....

.....

	RIGHT	LEFT
Whisper		
Watch		
Weber		
Rinne		
Schwabach		
C-1		
C-4		
Phono-Audiometer		
Audiometer A-2		
Ear Drums		

Throat Examination.....

Whispered Conversation.....

Comment.....

.....

Recommendations: Lip-Reading Class.....

Card .....

Retest .....

None .....

Fig. 4—Blank form for use of otologist: C-1 = 64 d. v.; C-4 = 2048 d. v.

DEPARTMENT OF PUBLIC HEALTH
San Francisco, California
DIVISION OF CHILD HYGIENE

HEARING CONSERVATION

Name of child.....attending

.....School, was found to have defective hearing. Kindly have the child examined and return this card to SCHOOL NURSE.

.....
Health Officer.

RECORD OF PHYSICIAN'S EXAMINATION
(To be filled out by physician and treated as confidential)

Condition of hearing { R / L

Drum membrane { R / L

Treatment recommended.....

.....

Is condition permanent, stationary or improved under treatment?

.....

Remarks .....

Date.....19..... Examiner.....M. D.

Fig. 5—Notification card sent to parents, and record of physician's examination to be written on the reverse side of card.

larger, as only such were included as had pus in the ear canal at the time of examination. Those who gave a history of recurrent discharging ears and those who were under treatment and had clean ears when examined were not included. Discharging ears under proper treatment can often be cured with resulting improvement of hearing or with the prevention of further loss of hearing. The majority of the children with discharging ears had had little or no medical attention and were not under medical care when examined. Some of the children with impacted cerumen gave a history of a long-standing impaired hearing of the affected ear.

IMPAIRMENT NECESSITATING LIP-READING INSTRUCTION

It is not always easy to decide just how much loss of hearing incapacitates a child so that lip-reading instruction is necessary. Children will vary: one child with normal hearing in one ear and a total loss of hearing in the other ear will have no difficulty in following a whispered conversation, and may even be unaware of the fact that he has one deaf ear; another child with normal hearing in one ear and a moderate loss of hearing in the other, say a loss of twenty-one sensation units, will be backward in his school work, have difficulty in hearing and be absolutely unable to follow a whispered conversation. All factors have to be considered, such as type of deafness, condition of ear drums, improvement expected under treatment, response to whispered conversation, and scholastic record before recommending the child for lip-reading instruction. A consultation with the principal or teacher may be of aid in making the decision.

The finding of almost one child out of fifty, between the ages of nine and sixteen years, with impairment of hearing sufficient to necessitate lip-reading instruction justifies the systematic and periodic examination of the hearing of all school children to locate defects that, uncorrected, eventually lead to permanent loss of hearing.

490 Post Street.

REFERENCES

1. Newhart, H.: Diagnostic School Clinic in the Public Schools as Factor in Conservation of Hearing, J. A. M. A., 87:1882, December 4, 1926.

2. Fowler, E. P., and Fletcher, H.: Three Million Deafened School Children, J. A. M. A., 87:1877, December 4, 1926.

DISCUSSION

ISAAC H. JONES, M. D. (1920 Wilshire Boulevard, Los Angeles)—The average case with chronic deafness presents one of the most discouraging problems that come to the otologist. Examination often shows that time for corrective measures has passed. For this reason we all are coming to realize that the great hope lies in prevention, or at least in the early correction of defects that are beginning to produce chronic changes in the auditory mechanism. With this in mind Professor Knudsen and I suggested to the school authorities in Los Angeles a year and a half ago that a systematic study could be made by the means of instruments which could be used by those not trained in otology.

Our plan has been different from that outlined by Doctor Rodin only in the detail of the method of conducting the test. It seems to us that by taking groups of perhaps sixteen one could "weed out" the normals in a minute or two. This would be accomplished simply by getting the percentage hearing for the 64 d. v. and determining the upper limit of hearing. If these are normal it is evident at once that there is probably no conductive defect, nor perceptive defect. These children could be dismissed at once and another series of sixteen similarly tested. Then, for example, if out of a series of four groups of sixteen there should prove to be three or four or more who were not normal, these individuals could have complete precise measurements made. A carbon copy would then be sent to the parents, who could take it to their otologist; the original would be kept for statistical purposes in the hands of the school authorities.

The Western Electric phonograph which Doctor Rodin uses is most ingenious and a very beautiful instrument. It is possible, however, that the quicker test of simply taking the lower and upper tones might not only save time, but give more information as to the nature of the defect than the phonograph test, which is limited to the range of the voice.

Those who have given thought to this subject all agree on the main essential—that systematic measurements with instruments of precision will bring out beginning hearing defects, in many instances perhaps five or ten years before these defects will be so gross as to be noticed by those with whom the children have ordinary conversation. The inauguration of this sort of work is surely a real civic opportunity for service.

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VERN O. KNUDSEN, Ph.D. (The University of California, at Los Angeles)—The work begun by Doctor Rodin at San Francisco deserves the attention of all public-spirited school authorities and otologists. It is difficult to estimate the value which will come from such a survey, but the wisdom of undertaking this

work, especially among the younger pupils, is unquestioned.

The discussion by Doctor Jones, of course, represents my views of the subject. The precise details of the manner in which this work is done is not so important as that Doctor Rodin has actually started this work in San Francisco. Doctor Jones and I have slightly different views in regard to the manner of conducting these group tests, but this should in no way confuse the subject. In the method which we proposed before the Pacific Coast section of the American Otologic Rhinologic and Laryngologic Society at its January, 1926, meeting the data of which are obtained in the quick group test are useful, but must be supplemented by additional measurements. I am inclined to believe this quick group test facilitates both speed and accuracy.

❋

William C. Hassler, M. D. (Department of Public Health, 1085 Mission Street, San Francisco)—For years the Department of Health in its work with the school child has realized the importance of testing acuity of hearing and vision, not only to determine the cause of any deflection from the normal, but also to prevent the results that follow deviations from normal of both sight and hearing and which affect the progress of the child physically and mentally. Though physicians are competent to make examinations, it is impossible to have more than a very limited amount of work done, and as the school population increased the problem grew.

It was therefore with great pleasure that the Board of Health welcomed into the field the advent of the Western Electric Company's phonograph audiometer and placed Dr. Frank H. Rodin in charge of the first work done in this city, a résumé of which is clearly set forth in his paper prepared for the last meeting of the California Medical Association.

We realize there is still debate as to the value of the phonograph audiometer, and argument has been advanced by some otologists that the sound registrations using the lower or upper tones save time in the testing groups and give more information as to the nature of the defects than the phonograph does. This is the opinion of Doctor Jones of Los Angeles in his discussion. We believe that compelling the child to put down on paper the sound he hears from the phonograph registers definitely what he hears and results in less error than any other group tests with which we have had experience.

Of the 6222 children examined, it is interesting to note that a total of 617 were referred to the otologist, and out of these, 157 showed definite defects which were amenable to treatment and correction. Ninety-nine of these children were referred for lip-reading instruction; in other words 1.6 per cent were placed in classes that enable them to obtain instruction which will have a distinct bearing upon their future.

The conclusion of our department work for the fiscal year certainly justifies the extension of our efforts to bring under test the entire school population at the earliest possible moment.

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John A. Bacher, M. D. (Lane Hospital, San Francisco)—Doctor Rodin's article clearly expresses the problems and difficulties that are encountered in endeavoring to conserve hearing. Any hearing test at best is subjective and therefore relative, not absolute. Improvements in instruments and their standardization will continue to give us a basis approaching more nearly the normal. The most valuable work along this line can be done if there is some means of locating those children who have only the very slightest degree of loss of hearing. For in these early cases rests our hope of reducing the astounding figure that one in sixty of the school children examined are subjects for lip-reading instruction. Conservation of hearing is entirely a matter of prophylaxis in diagnosing the process early and staying it.

I think it would be a little more intelligible to use percentages of loss of hearing rather than figures expressing loss of sensation units. I do not believe that the ordinary man reading this paper will understand the dividing line of nine sensation units loss of hearing which is the indication for re-examination. The fact that only half as many had a loss of nine or more sensation units upon the second test as did on the first test shows the importance of the subjective factor in the test and that the second test is the one that is important. I hope that five years from now or that ten years from now the method will have been so improved that hard-of-hearing children will be picked out in even earlier stages, and there will be no such astounding number as one in sixty requiring lip-reading instructions. This success or failure will be dependent in a large degree upon the care and attention which the private or clinic doctor to whom the child is referred gives to the patient, and how nearly normal he makes and keeps the nose and throat.

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Doctor Rodin (closing)—The importance of examining the hearing of school children is agreed to by the participants in this discussion. Doctors Jones and Knudsen have developed a very ingenious instrument for testing small groups, as mentioned by them. This instrument is based on sound vibrations, but I agree with Doctor Hassler that one cannot always depend upon a child's response to sound vibrations. The child may wish to assist the examiner by claiming that he hears a sound when he does not perceive it. With the phonograph audiometer the child is compelled to write down the numbers he hears. These numbers are then compared with the master sheets and the loss of hearing calculated therefrom.

Doctor Bacher is correct in stating that it would be more intelligible to use percentages of loss of hearing than expressing it in loss of sensation units. The phonograph audiometer is calibrated in sensation units, which is the unit adopted by Harvey Fletcher (see his New Methods and Apparatus for Testing the Acuity of Hearing, Laryngoscope 35:501, July, 1925), and to convert from hearing loss in sensation units to per cent hearing loss for speech, multiply by .83. It is the intention in future to state on the notification cards sent to the parents (Fig. 5) the percentage of loss of hearing.

Re-examination of all school children every two or three years with a suitable audiometer offers at present the best means of early recognition of loss of hearing, and the stage when treatment is of greatest value. I believe that such examinations with the proper cooperation of the parents, family physicians, and otologists will greatly reduce the number of children requiring lip-reading instruction.

Insects and Communicable Diseases—There are many types of mosquitoes in western states which are extremely pestiferous and their bites may be extremely painful. The salt-marsh mosquitoes are particularly aggressive, causing the keenest sort of discomfort to campers. While the bites of the anopheles mosquito may produce malaria, the bites of most other types found in the western states are seldom serious in themselves. They may lead to blood poisoning through scratching with the finger nails in an attempt to relieve the irritation, which is often very intense. To relieve the irritation, ammonia, glycerin, alcohol, or iodin may be applied. An application of moist toilet soap is also said to be effective in affording quick relief. Touching the bites with ordinary moth ball is also said to be effective. A weak solution of carbolic acid—about 2 per cent—is also useful in stopping the itching of a mosquito bite. Campers who visit districts where mosquitoes abound should carry a sufficient supply of ordinary mosquito bar in order that they may be protected against the attacks of these insects. This offers the best sort of protection.—*Weekly Bulletin, California Department of Public Health.*

THE ENVIRONMENT DURING PREGNANCY*

By J. MORRIS SLEMONS, M. D.
Los Angeles

DISCUSSION *by Edward N. Ewer, M. D., Oakland; Henry A. Stephenson, M. D., San Francisco; Norman H. Williams, M. D., Los Angeles.*

THE first of the Hippocratic Aphorisms declares, "The physician must not only be prepared to do what is right himself; but also to make the patient, the attendants, and externals cooperate." The recognition of the environment as a factor in medicine, then, is no modern innovation; it may fairly claim both ancient origin and honorable descent. More than formerly, perhaps, the principle involved now receives its proper emphasis, especially in the practice of obstetrics with conscientious prenatal care. However, for a clear statement of the responsibility the obstetrician assumes at the present time, I doubt whether the words of Hippocrates could be improved. This responsibility the physician tries to meet faithfully, as well as more competently, with increasing knowledge and experience. Familiar with this attitude, I have selected for discussion some of the influences our way of living may have upon the successful practice of obstetrics.

Environmental changes, naturally, call for new medical viewpoints. These viewpoints, we may think, are reached slowly by the profession; and yet, conservative as he is, the physician gives up tradition much more rapidly than does the layman. Various features of medical theory and practice outgrown by the profession retain the confidence of the laity for a long time, and become the basis for a good deal of the free, friendly, and often inappropriate therapeutic advice which people give to each other and which is often exasperating to physicians. If their historical origin be kept in mind the disturbing suggestions made to our patients "through the back fence" may lose some of their irritating qualities; then, too, it will become a simpler matter to justify rational methods of hygiene.

TECHNICAL KNOWLEDGE NOT SUFFICIENT

The competent supervision of pregnancy requires more of the obstetrician than purely technical knowledge in his special field. Among other things he must be familiar with popular tendencies in the way people live. These change from generation to generation—sometimes more than once in a single generation. In a period of rapid change like the present the obstetrician may find it difficult to keep up to date; but he must do so if he would honestly advise his patients regarding problems of such widely different character as, for instance, those relating to transcontinental travel and to social engagements at home. If there was ever a time when the prospective mother might be fairly told to do as she pleased, certainly it is not true of our age.

Consider the motor car, a mischievous agent during pregnancy, that never tempted our mothers. Its use, I find, must be discussed routinely and the hazard emphasized to every patient. Intending to err on the side of safety the directions offered are: first, avoid rough roads; second, do not exceed a speed of twenty miles per hour; and third, limit a ride to one hour. Women who have experienced a miscarriage, and a few others, are advised to give up automobiling altogether. Before long I anticipate the need of similar directions regarding the airplane. Indeed inquiries about it are occasionally made already. Thus far, as you know, we have no adequate basis for advice, and women willing to risk transportation by air during pregnancy must regard the outcome as the result of an experiment.

For obvious reasons the question of athletic sports will be raised more frequently in California than in the East; especially with regard to swimming, golf, and tennis. In a general way, very conservative advice is desirable; and, to my thinking, we must lay stress on the need for rest, not exercise, at least in this locality. Out-of-door recreation needs no insistence here. On the other hand the favorable conditions of climate actually provoke a tendency to overdo. It is my custom, therefore, to emphasize the value of systematic periods of relaxation and rest, urging an hour in bed, morning and afternoon of every day. This radical rule may represent a prejudice on my part, though I think not. The most gratifying results of my professional experience are credited to this régime, often practiced even more intensively. In some instances my patients have submitted to strict confinement in bed month after month in order to safeguard pregnancy.

THE PREVENTION OF MISCARRIAGE

A prolonged period of rest serves as an effective precaution against obstetrical accidents not infrequently. Its reasonableness requires no justification in cases of organic cardiac lesions. Here the heart, already drawing upon its reserve, becomes very sensitive to the additional work incident to pregnancy. Without proper care one of several unfortunate results will ensue—miscarriage, a break in cardiac compensation, or a maternal death. The best protection against a complication of this kind is elimination of the exertion of routine daily life.

Similar benefits follow enforced rest when a patient has a low reserve kidney or arterial hypertension with or without a trace of albumin in the urine. Even though term should not be reached, the pregnancy may often be carried to the time when the fetus is viable and delivery can be effected safely for mother and child. If such patients are allowed to do as they please they are apt either to abort spontaneously in the early months, or to require hurried treatment later, with the sacrifice of the fetus.

A third type of case prone to miscarriage or premature delivery is one in which the underlying pathological lesion pertains to the decidua. The glandular elements of the uterine mucous membrane are increased both in size and number. With this setting only a weak and insecure attachment is provided for the ovum. Only great

* Read before the California Medical Association at the Fifty-Sixth Annual Session, April 25-29, 1927.

caution—the strictest kind of inactivity—will prevent its dislodgment; negligence often causes what has been called "the habit" of miscarriage.

In the preceding groups cardiac, renal, or uterine lesions have presented the recognized basis for the complication. A fourth group, no less distinguished for the unfavorable, premature termination of pregnancy, probably has no anatomical foundation—at least none has been identified. The responsible defect apparently is functional. I refer to cases where the uterus proves to be exceedingly irritable, falling into contraction upon slight and unexpected stimulation, not infrequently at the same period of successive pregnancies in a given individual. This type of patient—often high strung, neurotic and inclined to move restlessly about the whole day long, sometimes without purpose—this type of individual must cultivate sedentary habits if she would overcome an inherent tendency toward miscarriage. Present-day influences are not helpful here; they are calculated rather to exaggerate the difficulties due to temperament. For such individuals a fixed determination to forego every duty or diversion entailing harmful activity, and the adoption of routine periods of rest, will provide a degree of insurance, not always adequate, however. The maximum protection is secured through rest in bed until the danger point has passed.

An extended period of rest, I wish to make clear, has been found unavailing in cases where repeated miscarriage was attributable to a chronic infection of the endometrium. The régime in question has then served to prolong the pregnancy beyond the time when otherwise it would have terminated, but not sufficiently for the fetus to mature. Specifically, in three instances of recognized decidual endometritis with consistent rest in bed, pregnancy reached approximately the sixth month, whereas previously with indifferent care miscarriage occurred between the second and fourth month.

Successful results which, as I said, have proved most gratifying have been secured in nine patients, distributed as follows: three with cardiac; two with renal insufficiency; one with glandular hyperplasia; and three with irritable uterus, presumably, as no anatomical basis was found to explain repeated miscarriages. After an experience of from two to four pregnancies terminating in miscarriage these patients reached term, or nearly so; because, so far as I was able to determine, they kept to bed, in one instance for a period of six months. The difficulties encountered with this exacting régime probably I know better than those who have not employed it. Only the well-to-do, it will be said, can meet such rigid requirements. If true the fact will not discount the value of the responsible therapeutic principle.

IMPORTANCE OF GIVING EXPLICIT INSTRUCTIONS

Certainly it will mean disappointment if we expect persons of limited means with manifold domestic responsibilities to make great sacrifices for the sake of pregnancy. None the less, irrespective of her station, the prospective mother deserves the warning to minimize household activities and the exertion incident to the care of a family, especially of young children. The recommendations made should fit the case. Directions of this kind cannot be left to generalization. A typewritten or printed routine offered indiscriminately may be useful, but must be supplemented, because each individual presents her own peculiar problems that demand separate consideration and specific advice.

MENTAL HYGIENE

During pregnancy, as at other times, the environment has a mental as well as a physical significance. The practical bearing the patient's state of mind has upon her welfare we, as physicians, acknowledge; and then neglect. Our negligence affords other agencies the opportunity they are quick to accept.

What shall we do? Surely, more than at present, for what we now do is virtually nothing. A well-directed and progressive step it would be if in gathering facts for the medical history we indicated by our questions that genuine significance attaches to the everyday life of the individual. In that way something of importance will be learned about the kind of amusement she prefers, her social obligations, the domestic problems that worry her, and in a general way the influence of the surroundings where she lives. To improve the environment may not be a simple task; but it will certainly be impossible to do so until we know what it is. One individual may need more time away from home; another more reading or reading of a different kind; a third perhaps suffers from too much diversion. Not infrequently interviews will be required with the husband, with relatives, or with friends who are in a position to give help. These are not trivial matters; none of you will regard them so if you recall a wretched patient, worn out, not with physical ailments, but with mental anxiety attributable to an unsympathetic husband, an interfering mother-in-law, or troublesome neighbors. Such problems may not be solved invariably. We should hardly expect them to be. Efficiency will come within reach, however, when we recognize that the environment is a factor in the successful management of pregnancy and give it honest consideration.

INFLUENCE OF SO-CALLED MATERNAL IMPRESSIONS

It is needless to remind a professional audience that unfavorable mental influences bear no relation to congenital deformities of the fetus. Yet, laymen cling to the doctrine of maternal impressions—an admirable illustration of the fact that a disproved medical theory loses popular credence very slowly. For many years distinguished physicians accepted without question this doctrine, which, thanks to scientific study, is now untenable. We have learned that the fetus suffers disease before birth which accounts for some of the phenomena formerly attributed to the mother's disturbed state of mind. For other defects embryological development gives a satisfactory explanation. Finally, anatomical studies—the dem-

onstration that there are no nerves in the placenta as well as no vascular channels through which blood passes from the mother to the fetus—exclude the existence of any path that psychic stimuli could possibly follow. And even though one existed its use as an agency in transmitting maternal impressions would be limited to a very short period, for the external form of the embryo has been determined by the end of the first seven weeks of pregnancy.

Nevertheless, even though discredited completely by sound medical teaching, the doctrine of maternal impressions still finds faithful adherents among the laity. When this lay attitude of mind with this viewpoint will disappear, would be difficult to foretell.

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DISCUSSION

EDWARD N. EWER, M. D. (251 Moss Avenue, Oakland)—It is agreed that few women receive adequate prenatal care. The number is increasing as more seek specialists, but perhaps attention is still too often limited to periodic urine examinations to forestall the late toxemias. The phases of the subject handled by Doctor Slemons are seldom mentioned and, considering the character of discussion evoked, evidently not always appreciated.

Not only automobile riding and driving, but long trips by rail have been followed by abortion often enough to attract the attention and concern of many obstetricians. To cite an instance: A woman after a train trip to New York had a hemorrhage upon arrival in her hotel. She recovered, finished her visit, and upon completion of the return journey flowed again and aborted. I have also seen several abortions during the last year which both the patient and I believed were caused by long automobile rides.

During the process of evolution the uterine activities became adjusted with reasonable facility to the exercise of walking, presumably upon "all fours"; but it is conceivable that upon assuming the upright position difficulties may have arisen which are still traceable in the proneness to abortion of some individuals. However, habit has made walking the safest exercise for pregnant women at present, and what it will do for the motor car and airplane rests with the future.

Many of us have seen patients who only succeeded in pregnancy by prolonged rest in bed. In one instance after six miscarriages between the second and seventh months of gestation, the patient went to term by remaining in bed continuously from the moment she discovered her condition. Another succeeded in the same way after three miscarriages. I have had many others recover from threatened miscarriages after shorter stays in bed. I am interested in the advice given in this paper about rest. Certainly excessive physical exertion during pregnancy is not desirable, and it is questionable whether earlier athletic training ever offers any good promise for the obstetric future of young women. In my experience there is an unduly high percentage of difficult labors among athletic women.

The author's remarks about explicit instructions and mental hygiene are important. Prenatal care of the worthwhile sort is individual advice given by the intelligent and interested obstetrician for the solution of particular problems as they arise. Those instructions which can be generalized and delivered in pamphlet form to the average prospective mother, while popular at present, are like the shotgun prescription—expensive and of limited value.

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H. A. STEPHENSON, M. D. (490 Post Street, San Francisco)—The subject discussed by Doctor Slemons is one which has received increasingly more attention in the past few years. Analysis of mortality statistics has shown the marked advantage which comes as a result of intelligent prenatal care. The new phases which are discussed by Doctor Slemons are timely and still other phases will, from time to time, present themselves. The effort of the conscientious obstetrician should be to anticipate, understand, and impart to the obstetrical patient these problems as they present themselves. In meeting these new problems one should not forget, of course, the old ones, particularly the one of maternal impressions, which is still steadfastly clung to by a considerable proportion of obstetrical patients.

Regarding the prevention of miscarriage, we heartily agree with Doctor Slemons' suggestions. We have also in our own practice paid some particular attention to the health and virility of the husband, particularly in those cases where repeated early miscarriages have occurred. In a large percentage of such cases we find that the spermatozoa are abnormal. Oftentimes the condition may be relieved by proper treatment by a competent urologist. Following such a course of treatment, full-time pregnancies with happy results have followed.

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NORMAN H. WILLIAMS, M. D. (1052 West Sixth Street, Los Angeles)—This subject so admirably presented by Doctor Slemons is seldom emphasized in medical literature. With the development of prenatal supervision, however, the reaction of the female organism to factors of environment is receiving increasing recognition and presents a definite problem for the obstetrician. Blood pressure and urinalysis will retain their rightful place, but more and more attention will be devoted to tendencies in civilization, especially referable to instability in physical stamina and nerve tension. Rapid changes brought about by new methods of locomotion, a strong American tendency to haste and hurry, the worship of the material rather than the spiritual, the capriciousness of matrimony, the trend of higher education, knowledge and practice of birth control, and the strain of economic conditions, all have their share in the deleterious effects upon the prospective mother; and, as such, on the part of the attendant they require insight, tact and proper consideration in treatment.

JUVENILE ACNE—ITS TREATMENT*

By ERNEST D. CHIPMAN, M. D.
San Francisco

DISCUSSION *by E. D. Lovejoy, M.D., Los Angeles; George H. Becker, M.D., San Francisco; Howard Morrow, M.D., San Francisco.*

THE term "acne vulgaris" as commonly used includes three types: the juvenile, the adult, and the cachectic. As the disease is most often met in the juvenile form, this discussion will be limited to that group.

GENERAL CONSIDERATIONS

In the juvenile form of acne vulgaris the dominant etiologic factor is the age of adolescence. The essential pathologic change is an increase in the size and functional activity of the pilosebaceous system. This leads to the formation of comedones, which are the primitive elements of acne. In the comedones may be found organisms variously called the acne bacillus of Unna, the microbacillus of seborrhea of Sabouraud, or the bacillus acnes of Gilcrist. Although these bacilli are constantly present in comedones it has by no means been proven that they are the cause of the lesions; it is quite possible that they are only casual residents therein. Many comedones be-

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coming secondarily infected with pyogenic organisms, most often the staphylococcus albus, develop into papules and pustules. Thus the typical picture of acne vulgaris presents a mixture of comedones, papules, and pustules, upon an oily surface.

There are some who declare the acne bacillus to be the exciting cause and ascribe a secondary rôle to such predisposing factors as age, digestive disorders, pelvic disease, focal infections, and endocrine influences. It is needless to debate the question as to whether or not the acne bacillus is the cause of acne. Two facts will probably be conceded: the organism has never fulfilled Koch's postulates, and treatment with acne vaccine alone has not been a therapeutic success. The predisposing factors which have been enumerated, while possibly of occasional importance in the juvenile form, are of much more importance in the adult and cachectic forms.

The treatment which one adopts naturally reflects the physician's views of the disease. There are today many and diverse notions complicating the subject of acne. Those who vaguely connect food with acne are legion, but of such, some blame fish and others fowl. The dicta of past generations die hard. One of the old masters asserted that a cure was hopeless unless tobacco was avoided.

It is the purpose of this paper to outline a very simple conception of acne together with a correspondingly simple plan of treatment based upon it.

First of all, adolescence and the newly awakened activities of the sebaceous glands are to be considered. Soon the ducts cannot, or do not, adequately carry off the new production. The formation of comedones, followed by the secondary infection of some, results.

The treatment of the comedones and the consecutive lesions is important, and the thoroughness with which the comedones are expressed and the pustules incised and drained, will be reflected in the improvement which follows. When one considers, however, that the entire picture depends upon an increase in the size and in the functional activity of the sebaceous glands, the therapeutic indication stands out in bold relief. For in the roentgen ray we have an agent which positively and precisely reduces both the size and the activity of these glands. From the standpoint of treatment it is unimportant whether the increase in sebaceous activity results from endocrine, bacterial, or some other influence.

Two points require emphasis. First, while the x-ray gives the most positive therapeutic results, it is practically the only remedy that holds harmful potentialities. Second, no matter how effective, the x-ray can be advantageously augmented by other measures.

TREATMENT

General—At the first visit an effort is made to discover whatever general physical defects exist in the patient. In girls of the acne age a certain degree of constipation or anemia is sometimes encountered. Iron, arsenic, laxatives and general hygienic directions are given to meet these indications. If the patient takes an excess of sweets, their use should be curtailed because an oversupply of blood sugar predisposes to pustule formation. Sweets in moderation are not interdicted. In the adult form of acne it is more important to forbid highly seasoned and stimulating articles of food and drink which cause reflex flushing, but in the juvenile patients it seldom seems necessary to make these restrictions.

Local—It is from the local treatment that we must expect our best results. The usual picture is the well-known oily skin sprinkled with comedones, papules, and pustules. Close inspection shows a considerable degree of hyperkeratosis about many of the lesions and many visibly distended sebaceous ducts which contain only potential comedones. The paramount problem at this time is the establishment of normal drainage. To this end the removal of as much of the surface detritus as is possible is effected by the use of strongly alkaline soaps and the application of active keratolytics. For the soap nothing surpasses a good laundry soap, though some may favor the use of green soap or its tincture. In conjunction with this my personal preference is for the use of cold water because it improves the tone of the skin; and I interpret the word "tone" to mean an increase in the power of the muscle fibers which are appended to the pilosebaceous apparatus and which furnish part of the propulsive force for the distribution of the sebaceous secretion. Very frequently we find women complaining of "large pores." In practically every instance we find that they have been inordinate users of hot water, their idea being that it is more effective in the removal of oil than cold water. While this is true it has the defect of lessening the muscular tone as well as causing expansion of the follicular openings. It will be found more satisfactory in practice to depend upon alkaline soap for the solvent action, even with cold water, particularly as the cold promotes both muscular tone and contraction of the pores. At times the use of warm water is necessary to remove external applications, such as salves and pastes, and here its use is followed by the application of cold water.

At this point it may be mentioned that, although the usual picture is one of a generalized oily surface, there are occasionally noted cases in which the oily background is not pronounced. In such instances the inference is fairly obvious that the trouble is limited to scattered ducts and that the indication for intensive effort with oil solvents and x-ray treatment is not so definite.

The patient having been duly instructed as to the important part played by thorough cleansing and friction with soap, the initial treatment consists usually of incision of pustules. This is most easily accomplished by means of a special acne lance of some description. My own preference is an oculist's instrument, the iridectomy knife. Because of its narrowness and delicate point it makes the incision of pustules nearly painless, and the sole disadvantage that it may penetrate more deeply than desired is overcome when one becomes accustomed to its use. Following the in-

cision of the pustules some of the more pronounced comedones are extracted. As a rule not much is attempted in this direction until a subsequent visit. The reason is that the next indication to meet is the removal of as much epithelial detritus as is possible, and this is usually accomplished by the use of some keratolytic. Ordinarily a 10 to 15 per cent resorcin paste is the choice. If this has been applied nightly for one week or more it will be found that the modified peeling which has taken place has also made possible the more easy removal of the comedones. At the second visit patients generally show some improvement and at this time the blackheads are attacked. For this purpose any form of comedone extractor may be used. None seems perfect, but the ordinary double-ended, slightly curved variety, is perhaps as satisfactory as any.

If the keratolytic action of the resorcin is now judged to be sufficient a mild sulphur lotion is substituted; if not, the resorcin is continued. Some patients seem to do best with rather long-continued, but intermittent use of resorcin paste.

Unquestionably by these means we may accomplish quite a satisfactory improvement in the appearance of our patient, but no matter how striking this may be, we are confronted with the fact that so far we have ameliorated the effects without having done much to remove the fundamental cause, which is an excessive activity of the sebaceous glands. It is here that the indication for x-ray therapy is apparent.

The advantage of x-ray treatment in acne lies in its selective action upon the sebaceous glands, reducing their size and functional activity and thus doing away with the condition which makes comedones possible. If there is no excessive secretion or faulty distribution of the sebaceous secretion there are no comedones; if there are no comedones there is no acne.

After a few fractional doses with the x-ray a definite diminution in the oiliness is apparent. In many cases the improvement is striking. It is worthy of repetition that this roentgen-ray treatment should not be undertaken by any except those who are trained in the use of the x-ray and who are competent in the interpretation of cutaneous reactions. The danger is not only that of an acute radiodermatitis from a single overexposure, but in the results which may appear from the cumulative effect of smaller doses given over an extended period. Mackee has cautioned against the concurrent use of x-ray and strong local chemical agents. There is doubtless ample justification for stressing care in this respect, but I may say that I have prescribed almost as a routine the intermittent application of resorcin paste of from 10 to 15 per cent strength while x-ray treatment was in progress, with never an unpleasant result.

Practically the only reasons for calling an early halt in roentgen therapy are the occasional occurrence of a certain degree of pigmentation and the discovery that the sought for diminution of oiliness is at hand. Pigmentation is only a transient cosmetic matter, but it is sometimes of such import to the patient as to make continuance of the treatment inadvisable. As for the latter it is important to discontinue the exposures short of the degree of dryness desired, because of the cumulative effect of the treatment.

The average patient treated by the x-ray shows marked improvement in four weeks' time. Ordinarily fractional doses, 1/4 to 1/6 unit, are employed weekly for from four to six weeks and then continued at biweekly intervals until eight to twelve treatments have been given.

Many patients show practical cure within this limit. In those where the response has not been perfect a rest interval of two or three months is given, during which time the treatment with local applications is continued. One must expect occasional exacerbations and relapses, but the rule is orderly progress toward recovery.

In the matter of topical remedies, I have found two most satisfactory: resorcin paste for its shelling action, and compound lotio alba for its specific and astringent effect.

There remains to be mentioned, local treatment with the ultra-violet ray. So far as I have been able to observe the good resulting from this treatment is practically limited to the improved drainage which follows exfoliation. Inasmuch as a small jar of resorcin paste will accomplish this, it hardly seems justifiable to cause the patient the discomfort, loss of time and expense which this light treatment entails.

SUMMARY

To recapitulate:

1. General treatment:
   (a) Obvious physical defects are to be corrected.
   (b) The average acne diet is frequently unnecessary and often grotesque. I have never seen a case cured by dietetic treatment alone.
   (c) The use of staphylococcus vaccine may cause diminished pustule formation, but as a rule the results are not to be compared with those which follow local surgical measures. I have never seen even improvement from acne vaccine alone.
2. Local treatment:
   (a) Soap and water alone, surgical treatment alone, keratolytics alone, will cause improvement in acne. Combined they will give relatively satisfactory results in most cases.
   (b) The x-ray is practically a specific, but it should only be employed by one who is trained in roentgenology and who is experienced in the observation of skin conditions.

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DISCUSSION

E. D. Lovejoy, M. D. (520 West Seventh Street, Los Angeles)—Doctor Chipman has summed up in a concise manner our present knowledge of acne vulgaris and its treatment.

This is one of the group of diseases of which our conception of etiology is far from being complete, and

having no definite point of attack for treating the condition we fall back on the selective atrophying action of the x-ray with its possible "harmful potentialities."

The chief underlying factor of the acne picture is an hypertrophy and hypersecretion of the pilosebaceous glands occurring at the time of puberty, a period when gland growth and secretion are most pronounced. We can fairly well rule out the results produced on the plugged duct of the sebaceous gland by the acne bacillus and the staphylococcus, as the former can be demonstrated in the sound ducts on the lateral aspects of any greasy nose, and although present in abundance, fail to produce an acne condition; and the staphylococcus is found only in those lesions where an abscess formation has occurred in the mass of detritus with which the enlarged duct is blocked, many of the lesions remaining in a comedone stage and progressing no further. Control of this pustular or abscess type of lesion was the curative rôle played by the vaccine therapy, no effect being produced on the comedone.

Diet, or rather faulty diet, with lack of balance in starch and sugar, can and does exaggerate an attack, but while its correction is of assistance in the treatment of the disease, we see many patients suffering from an excessive ingestion of carbohydrates without skin infections, and hyperglycemia, although fairly constant, does not occur in all cases.

Thyroid dysfunction has been found associated as a frequent feature of puberty, but, although mentioned by several authors on acne, no study has been made of its causative rôle, but the possibility of a glandular dysfunction as an underlying etiology sounds at least possible at the present time.

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GEORGE H. BECKER, M. D. (240 Stockton Street, San Francisco)—Doctor Chipman's contribution should be received with keen appreciation by the general profession. In this advanced age, it is indeed a pleasure to have an author propose a "simple view and a simple treatment" of any problem.

The acne problem, although belonging entirely to the field of the dermatologist is perhaps more often presented to the general physician for solution. This is specially true of the less aggravated cases.

In view of our continued ignorance of the etiology, although we have endeavored to class it as infectious, metabolic or endocrine, the writer has advisedly refrained from any elaborate constitutional therapy. To be sure, in this as in other diseases, any pathological conditions found must be corrected according to the principles of general medicine.

I have always felt that we must focus our attention upon the local treatment. Remembering that the local condition is one of hypersecretion of the pilosebaceous glands and a resultant plugging of the ducts, with subsequent bacterial infection, our initial aim should be for drainage. Doctor Chipman has ably enumerated the methods used to bring this about. I am glad to see him place soap and water in a position of importance along with the keratolytics. I have always used alkaline soaps and hot water, invariably followed by cold water. The pustules must be treated surgically. Persistency in thus relieving the condition often brings satisfactory results.

For the more aggravated cases the cause must be treated. It is in these cases that our latest ally, the x-ray, is of the greatest help in diminishing the glandular activity.

Doctor Chipman has given us a very practical paper.

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HOWARD MORROW, M. D. (384 Post Street, San Francisco)—Doctor Chipman has given us a sane regimen for the treatment of acne based on his many years of experience. In general it is about the same procedure that we follow. After correcting outspoken indiscretions in diet or mode of living, we have our patients use a bichloride of mercury and resorcin lotion well rubbed over the areas twice daily and give them fractional x-ray therapy every two weeks for six treatments. At the time of each visit we empty all pustules and express as many comedones as possible. If the comedones are thoroughly removed it is of great value, but if only the upper half of the comedone is removed and the surrounding skin is traumatized in the process a pustule is sure to result.

The care of the scalp in patients with acne is of importance. If there is considerable scurf or dandruff and it is not controlled the acne is almost certain to recur.

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AUTHOR (closing)—One point may be emphasized in closing this discussion: the distinction between the juvenile and the adult types of acne. In the latter the seborrheic status is of relatively little consequence, while in the former its importance is paramount. I believe the failure to differentiate these types is responsible for the wide divergence of views concerning treatment. It will add to the clarity of the subject if this distinction can be uniformly made.

METALLIC TINKLES IN PNEUMOTHORAX*

By AUDLEY O. SANDERS, M. D.
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DISCUSSION *by Chesley Bush, M. D., Livermore; Philip King Brown, M. D., San Francisco; Charles C. Browning, M. D., Los Angeles.*

TEXTBOOKS on physical diagnosis have made comparatively few changes in their sections on pneumothorax during the past twenty-five years, notwithstanding the advent of a new phase of the condition, that of induced or closed pneumothorax as distinct from accidental, open pneumothorax which comprised the cases on which the earlier observations were made.

With the many thousands of cases of induced pneumothorax and the long-continued, careful observations made in the course of pneumothorax treatment in recent years, it would appear that the old problems of physical signs and their interpretation should have long since been clarified.

As an example of a common sign with varied interpretations, the metallic tinkle is here presented. All textbooks list this as one of the important signs in pneumothorax. But when the important question as to what intrathoracic conditions are necessary for the production of this sign there appears to have been little added since the very lucid discussions of Laennec and his contemporaries of a hundred years ago.

DIAGNOSTIC SIGNIFICANCE AND CAUSES OF METALLIC TINKLES

Textbooks[1] continue to give the metallic tinkle as diagnostic of Laennec's triple lesion: (1) pneumothorax or pulmonary cavity with (2) open bronchus and (3) fluid or effusion.[2] This was questioned by Williams, an English contemporary of Laennec. In 1842 Williams wrote, "The conditions are not, as Laennec supposed, essential to metallic tinkle production. . . . We have heard metallic tinkling accompany both voice and cough in a case of pneumothorax without liquid effusion or perforation of the pleura.[3]

In the light of the observations of recent years on cases under pneumothorax treatment, with

* Read before the Alameda County Medical Society, September 16, 1925.

neither open bronchi nor demonstrable fluid, can the interpretation of the metallic tinkle, as diagnostic of the triple lesion, continue to be accepted?

Laennec explained that the metallic tinkle could be caused by air from an open bronchus vibrating over fluid in a pneumothorax or pulmonary cavity. He also spoke of the "falling drop" as a possible means of tinkle production in such a cavity.[4] However, there is still dispute in textbooks as to the mechanism of the tinkle production.[5] Is the tinkle produced by (*a*) the vibration of air over fluid in a pneumothorax or pulmonary cavity, (*b*) the "falling drop," (*c*) the breaking of an air bubble through mucus of an open bronchus into an air cavity, (*d*) an air bubble from an open bronchus ascending through an effusion, or (*e*) by the amphoric echoing of râles produced in diseased tissue near a pneumothorax or pulmonary cavity?[6]

May it not well be, as Doctor Gee has stated,[7] that each of these explanations is correct in particular, individual cases? May it not be that a sound of a certain quality and pitch, no matter how produced, will assume a metallic, tinkling character, if released into a pneumothorax or pulmonary cavity with proper conditions of walls and of air pressure? Some of the older authors[8] even warned of the possibility of mistaking the metallic tinkles over a gas-distended stomach for those of a pneumothorax.

AN ANALYSIS OF FORTY-FOUR CASES OF PNEUMOTHORAX

Below are presented observations of the writer on forty-four cases of pneumothorax. Most of these patients were observed by the writer over periods varying from two to eighteen months, frequent, careful physical examinations being made during these periods. X-ray examinations were also made on practically every patient at approximately the same date as the physical examination.

TABLE I—*Ten Cases of Accidental Pneumothorax (With Possibility of Open Bronchi)*

In five cases with demonstrated fluid, metallic tinkles were heard.

In three cases with demonstrated fluid, no metallic tinkles were heard.

In one case with no demonstrable fluid, metallic tinkles were heard.

In one case with no demonstrable fluid, no metallic tinkles were heard.

TABLE II—*Thirty-Four Cases of Induced Pneumothorax (With Closed Pleural Cavities)*

In eight cases with demonstrated fluid, metallic tinkles were heard.

In four cases with demonstrated fluid, no metallic tinkles were heard.

In sixteen cases with no demonstrable fluid, metallic tinkles were heard.

In eight cases with no demonstrable fluid, no metallic tinkles were heard.

It will be noted that two cases were reported twice. In one of these cases tinkles were heard though no fluid could be demonstrated by x-ray or physical examination. Some months later fluid developed, but tinkles were no longer heard. In the other case tinkles were heard for several months, though no fluid could be demonstrated by x-ray or physical examination. With the later development of fluid the tinkles persisted.

In the cases recorded above, metallic tinkles were noted with gradations from very fine and faint to those distinctly bell-like. Findings were practically never exactly the same at two consecutive examinations.

In one case of accidental, complete pneumothorax of the left side with no fluid, the clear bell tones were exactly synchronous with the beats of the patient's heart. There could be no question that the sounds were originated by the heart movement.

In another case an accidental, partial pneumothorax with fluid, medium râles over the second interspace changed to distinct, clear, metallic tinkles as the patient changed position, the bell of the stethoscope being held in place as the patient's position was changed. As the patient slowly returned to his first position the metallic quality was lost. This procedure was repeated at intervals during the examination. On other examinations of this patient, no tinkles were noted.

In several cases of induced, partial pneumothorax, further collapse being prevented by firm, pleural adhesions over extensive lung lesions at the apex, typical, moist râles were heard over the adherent, diseased lung, and, as the stethoscope bell was moved off the margin of the adherent lung, the râles could still be heard, more faintly but with an added amphoric or metallic quality. As the stethoscope bell was advanced gradually away from the adherent lung and over the pneumothorax cavity, these sounds became unmistakable, faint, metallic tinkles.

CONCLUSIONS

1. It would appear from the findings noted in the forty-four cases of pneumothorax here reported that the metallic tinkle in pneumothorax is not confined to those cases with open bronchus and effusion. Metallic tinkles were heard in cases of induced pneumothorax with neither fluid nor open bronchus.

2. It would also appear that metallic tinkles may be produced by sounds arising from distinctly varied sources.

U. S. Veterans' Hospital No. 102.

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DISCUSSION

CHESLEY BUSH, M. D. (Arroyo Sanatorium, Livermore)—It is high time that someone should begin to question the interpretation of certain physical findings in the chest. Textbooks have a habit of copying each other until certain statements are accepted as traditions without further investigation. Metallic tinkle is a case in point. At best we can but speculate as to the cause of this distinctive physical finding; but since the advent of artificial pneumothorax and the roentgen ray we should have considerable more basis for speculation than did Laennec one hundred years ago.

Doctor Sanders' careful work is to be commended. He has shown that Laennec's so-called triple lesion—(1) air, (2) open bronchus, (3) fluid—need not exist in all three components to produce metallic tinkle. He has shown that fluid need not be present. This is in direct contradiction to textbook explanation of Norris and Landis, who show that air must bubble through fluid to produce the tinkle in bottles. We have set up this apparatus and found that in bottles such is actually the case, but we do not believe that the bottle experiment parallels conditions in the chest.

On the very day that Doctor Sanders' paper was sent to me for comment Doctor Brier, of this sanatorium, demonstrated to me beautiful metallic tinkles in a case of artificial pneumothorax without any evidence of fluid, either by physical examination or by fluoroscope. There was reason, however, to believe that an open bronchus existed on account of the excess air in the chest. It has been my experience in the past with artificial pneumothorax that metallic tinkles were never heard except in those cases where an open bronchus existed; and of course the majority of those cases also had fluid. I have never heard them in an uncomplicated artificial pneumothorax without fluid.

We must conclude that demonstrable fluid is not necessary for the production of metallic tinkles, but hold an open mind as to the exact method or methods of their production.

❋

PHILIP KING BROWN, M. D. (909 Hyde Street, San Francisco)—Doctor Sanders has made an important criticism and contribution, for it is quite true that physical examination of a chest once invaded by air introduced into the pleural cavity for therapeutic purposes alters conditions in a way that requires new valuation of old symptoms. Pleural signs closely resembling fine dry râles, increased by cough and the varying signs over an artificial pneumothorax, are in need of explanation. Doctor Sanders has made quite clear under what varying conditions tinkle can occur, and his observations on the production of the tinkle synchronous with heart heat are especially important.

It has seemed to me that one determining factor is tension, and in cases of marked rigidity of the mediastinum tinkle was more apt to occur. As Doctor Bush points out, the bottle experiment is not the same thing, but it does illustrate transmission of tinkling sound under conditions of rigidity of the wall. The change in sound with change in position may have an explanation in the same change in tension.

❋

CHARLES C. BROWNING, M. D. (711 Merritt Building, Los Angeles)—I have not collected in tabulated form data of the cases which have come under my observation in which I have found metallic tinkles in pneumothorax. The cases which he reports of accidental pneumothorax and the number of cases in which metallic tinkles were heard with and without fluid, and also the report in the second table of induced pneumothorax, are exceedingly interesting. I have met cases reported in each of these classes.

In reply to his inquiry if it "may not well be, as Doctor Gee has stated, that each of these explanations is correct in particular, individual cases?" In my judgment, yes. I would also make the same answer to the question immediately following, "May it not be that a sound of a certain quality and pitch, no matter how produced, will assume a metallic, tinkling character if released into a pneumothorax or pulmonary cavity with proper conditions of walls and of air pressure?"

I also concur in his conclusions.

Accepting the statement (physical diagnosis of diseases of the chest, Pratt and Bushnell) that, "All normal respiratory sound is caused by the air streaming through the rima glottidis. . . . The sound (vesicular) that is heard over the lungs is fundamentally the laryngeal sound amplified by the thorax as a resonator. . . . Bronchial sound likewise is produced in the larynx. It is amplified in the bronchi, which act as resonators for sounds of higher pitch than that of vesicular sounds, I would add."

Changed conditions may modify these sounds in transit, and these changes may be transmitted with corresponding modifications to the respective resonators, the thorax, and bronchi. One of the more common changes is in the amount and character of moisture in the bronchial tubes. The more viscid fluids give a greater variety of sounds, which are spoken of as amphoric, musical, metallic, etc. The peculiar character of these sounds is transmitted to the chest wall amplified by the resonators.

During the existence of pneumothorax many of the bronchi are not receiving the ordinary amount of air. However, if one has become patent and allowed air to escape into the pleural cavity it remains a good conductor of sound and the air passing through this will conduct sound which may have been occasioned at any point within the bronchial tube and not only at the point where the air enters the pleural cavity. The thorax containing air under the condition of pneumothorax acts as a resonator for sounds thus received. This will occur through moisture in the bronchial tubes, of a proper quantity and consistency. It is conceivable that a cavity which has been compressed may lie sufficiently near the pleura as to transmit sounds, and that air entering such cavity or passing through a bronchus containing proper fluid may produce sounds which may be amplified by the resonators.

I have made demonstrations by the use of a soft rubber bottle and a system of tubes controlled with an air pump which I believe justify me in the conclusion, that sounds originating at a distance from the site of the pneumothorax may produce tinkle sounds which may be transmitted to this site, on the principle of a speaking tube. I have produced tinkle sounds at eight inches distance which seemed as distinct as

those produced at two inches. I have not thought this work was of sufficient importance to justify me in reporting it. It has, however, given me a conception of the variable conditions which may result in the production of metallic tinkle in relation to pneumothorax.

*

DOCTOR SANDERS (closing)—I think the gentlemen who have so kindly discussed this paper agree with me in the belief that the world has had but one Laennec; that, in all probability, the world will never have another such genius in physical diagnosis; and, were he living today, that he would be of the first to question any outworn formula.

TONSILLECTOMY WITH NITROUS OXID-OXYGEN ANESTHESIA*

By MERTON PRICE, M. D.
San Francisco

DURING the past five years tonsillectomy under nitrous oxid-oxygen has become an accomplished fact. Apparently unacquainted with the work of McKesson and J. H. Evans, most of the laity and a goodly percentage of the medical profession still view this procedure as a surgical innovation.

Owing to the frequent demands for the removal of children's tonsils under some method other than ether narcosis, we have attempted at the Children's Hospital, San Francisco, to develop a nitrous oxid-oxygen technique. We have made this operation, not a matter of routine, but of selection. In most cases there has been definite pathology calling for the removal of the tonsils and the exclusion of ether anesthesia. These pathological conditions have been nephritis, septicemia, mastoiditis, acidosis, bronchitis (acute and chronic), osseous tuberculosis, tuberculous adenitis, and pulmonary tuberculosis.

ADVANTAGES

There are certain advantages obtainable under nitrous oxid-oxygen anesthetic. The induction period is greatly reduced (two to four minutes). Under ether, fifteen to twenty minutes is not unusual. The spasm of coughing, retching and vomiting, attendant upon the spraying of ether vapor upon the pharynx, is noticeably absent. The surgeon is not hampered by the excessive inhalation of ether. He is not required to regulate his own respirations nor to wear an unusual shield. Many oral surgeons find it necessary to wear grotesque gas masks to avoid a chronic ether bronchitis.

While the laryngeal reflexes are relatively difficult to abolish under nitrous oxid-oxygen, this is not an obstacle but an aid to the surgeon who insists upon a light anesthesia.

The pharyngeal and laryngeal reflexes may be entirely suppressed under nitrous oxid-oxygen. Such deep anesthesia is not only unnecessary, but most undesirable. There is a certain element of safety in a partially active laryngeal reflex. Under ether anesthesia there is a decided irritation of the pharyngeal and laryngeal mucosa, with its resultant excess secretions and interruption of the anesthesia. These disagreeable features are entirely eliminated under nitrous oxid-oxygen anesthesia. There is little or no mucus present, and the operator is working in a clear, dry field. By lowering the table and using suction the anesthetist can prevent the blood and serum from entering the esophagus and larynx. A few moments after the completion of the operation the patient is awake, in possession of all his faculties, and able to cooperate. This usually prevents swallowing of blood and thereby eliminates nausea and vomiting.

The usual parents' question is, "How long will it be before the child is awake and able to talk?" With nitrous oxid-oxygen narcosis, the parents welcome to the room a conscious child, and their hours of suspense are ended. This is a joy and triumph for the anesthetist and surgeon.

DISADVANTAGES

The disadvantages are entirely upon the shoulders of the anesthetists. The physician must be cognizant of the depth of the patient's narcosis at all times. Pupillary reactions, phonation, muscular contractions, cyanosis, pulse, blood pressure, and respiratory rhythm must be given their true values and immediately interpreted. Cyanosis does not always mean a deep analgesia, nor does a cry mean the reverse. A moaning child may be profoundly unconscious. On account of the rapid action and quick elimination of the gas there is occasionally some difficulty in holding the patient at the same level of narcosis. This apparent objection can be overcome by a mutual cooperation of the anesthetist and operator.

It is unfair to ask graduate nurses and inexperienced physician anesthetists to attempt this work. It is a specialty, and calls for profound knowledge, alertness and judgment obtained only through experience.

We feel that the age of the patient has no influence on the anesthetic. The youngest patient was 6 months, and the oldest 52 years of age.

The amount of bleeding is the same as under ether. There is an occasional darkening of the blood which at first may be disquieting to the operator. This cyanosis is usually transient. Any bleeding points may be easily clamped and ligated. Suturing and dissecting of scar tissue are readily performed.

There seems to be little or no change of the blood pressure. McKesson states that nitrous oxid-oxygen may be administered in any operation which is comparatively free of other shock-producing factors for two hours without a material change in either systolic or diastolic pressure. This has been our experience. At the end of the operation the blood pressure returns to normal or slightly below normal. A properly administered nitrous oxid-oxygen anesthesia produces little or no change in the blood pressure.

The preoperative routine consists of a general physical examination of the patient and a laboratory examination of the urine and blood, with the bleeding and coagulation time. No food or liquids are given the morning of the operation. Divided doses of morphin sulphate and atropin are given

* Read before the Anesthesiology Section, California Medical Association, at the Fifty-Sixth Annual Session, Los Angeles, April 25-28, 1927.

according to the age of the patient. In patients with hyperactive pharyngeal reflexes a 4 per cent cocain solution is sprayed upon the lateral and posterior pharynx. The patient is placed in the recumbent position with the head slightly lowered. A positive pressure machine with nasal and mouth attachments is essential for a smooth nitrous oxid-oxygen anesthetic. The face mask is applied gradually. The nasal cap and mouth piece are not adjusted until the patient is completely anesthetized. The room is not darkened, and the necessary illumination is furnished by a bifocal head-light. The use of a daylight room is a material aid to the anesthetist and in no way handicaps the surgeon.

The tonsils are removed by the usual sharp dissection and snare method. Time for the removal of the tonsils has varied from thirty-six seconds to four minutes. The average time has been about two minutes. It is at this period that the deepest anesthesia is necessary, and following the removal of the tonsils the patient is retained under a lighter analgesia for a period corresponding to the coagulation and bleeding time. If there is bleeding at the end of this period the bleeding points are clamped and ligated. Any blood in the throat or nasopharynx is removed by suction. Gauze sponges or wipes of any description are not applied to the throat. The patient is fully conscious before leaving the operating room.

The postoperative care is reduced to a minimum owing to the absence of nausea and vomiting. The child frequently sits up in bed and plays with his toys, while the adult resumes an interest in life.

Tonsillectomy with nitrous oxid-oxygen anesthesia is practical and not accompanied by excessive dangers. It has its definite indication in certain pathological conditions.

The operative technique required is not difficult, but depends upon the close cooperation of a competent anesthetist and the surgeon.

490 Post Street.

Prize Babies—The New York *Herald-Tribune* of August 31 contained unique editorial comments on the Asbury Park parade, and said:

"We have never known a baby champion in adult life, at least consciously. Nevertheless it is not hard to believe that if he or she is aware from hearsay of the glory that crowned the infant head, he or she feels no temptation to boast of it. Quite the contrary. Everyone has had friends who liked to relate that when they were born the doctor told their parents they weren't worth raising, or that as children they were so sickly their lives were despaired of. This is a natural form of vanity, since the comparison implied is very flattering.

"These folk say in effect: 'Look at me now and see what I have become despite such a poor beginning.' But who wants to say: 'I was the champion baby of the Jersey coast in the year uppty-um and now look at me"? We all shy from anticlimaxes.

"Today, we learn, twenty-seven winners of baby parades throughout the country will compete for the title of champion baby of America at Asbury Park. At this distance and in advance we commiserate the winner and congratulate the mother."—*New York State J. Med.*

THE LURE OF MEDICAL HISTORY*

VESALIUS

By JEAN OLIVER, M. D.

AMONG the first books of all time Vesalius' "De Humanani Corporis Fabrica" holds high rank. And this is true from whatever point one wishes to examine its merit. As an example of the art of the printer it has served as an inspiration to craftsmen since its appearance in 1543 down to the modern revival of the art by Morris in England, and doubtless also to our local typographers, Nash and Grabhorn.

Its illustrations are well worthy of the period of graphic renaissance which had occurred in Italy shortly before Vesalius prepared his dissections as newly appointed professor of anatomy at Padua. Pallaiuolo, Leonardo, Titian and Michael Angelo had shown their skill at the delineation of the dissected human body, and Vesalius had but to control the efforts of the artist with his scientific skill to produce anatomical plates whose combination of artistic and scientific accuracy has never been equaled. The modern anatomist may find inaccuracies indeed, but he might learn the value of the living delineation of the dead in these figures of skeletons and muscular dissections which assume the attitudes of the common movements of daily life and so show the relation of articular and muscular structure to function. Vesalius' dissections live—the modern type is as dead (and as unattractive) as a cadaver.

The Lane Library possesses all of the more important editions of Vesalius' work: the first and second editions, the English, German, and Dutch Epitomes, which reduced the text to the convenience of the medical students of their time, but preserved the illustrations. The later copper plate issue of a Dutch edition is also there to compare with the original woodcuts. An examination of the illustrations alone will give one a considerable grasp of the state of anatomical science at that time, of the advances it had but recently made and perhaps a truer insight into the character of Vesalius than can be gained by the reading of many books about him.

Let us turn to the title page of the first edition of 1543 which represents Vesalius holding an "Anatomy" and which is filled with a wealth of allegorical and literal detail.

Anatomy had come at last to her own—no longer is there a furtive and hurried dissection at night by candlelight in some mortuary cellar as Leonardo has depicted, but in a magnificent hall which rivals the apse of St. Peter's. High above the colonnade are the arms of Vesalius, three weasels which represent the town in Belgium from which his family derived its name, for throughout his life Vesalius never forgot that he was an aristocrat in origin and by education, a very proper person to be professor at the newly established chair of anatomy at Padua, and later court physician to His Catholic Majesty the King of Spain.

Below the title is the Greek tragic mask, indi-

* This article is the first of a series on the history of medicine. See editorial in October 1, 1927, California and Western Medicine.

cating that Vesalius would have us consider the structure of the body as essential to the drama of life and death, while in the body of the apse, before an amphitheater crowded with spectators is Vesalius dissecting and explaining the abdominal viscera of a female subject. The index finger of one hand is raised as if to emphasize some point and in the other is a small baton with which he may point as he describes. Quite different is this pointer from that of the former professors of anatomy and which the articulated skeleton now holds that stands at the head of the table. And here is one of the great advances in his science that Vesalius made, for while the older professors sat at a high desk apart from the cadaver reading from Galen a description of the part which was clumsily dissected by a humble barber and demonstrated at a comfortable distance with a long rod, Vesalius was proud of his title of "professor, ostensor et incisor" and makes many a scornful allusion to physicians too delicate to handle anatomical material. On the table before him are anatomical instruments which two men at the foot of the table are busily sharpening.

The audience is noteworthy, as it shows the general interest of the times in the new science of anatomy. The seats and the pit are crowded to overflowing; spectators stand in the colonnade and lean from the gallery above the apse. It will be noticed that medical students, or at least young faces, comprise only a small part of this gathering—the majority are mature bearded men, many in the sandles and flowing robes which the graphic art of that time had chosen as the symbol of the Graeco-Roman philosopher. This is obviously a suggestion on the part of Vesalius that the followers of Aristotle and Galen, with whom he had many a bitter controversy, might attend with profit an actual dissection. Another allusion to the Galenical doctrine is found in the monkey—a favorite subject of dissection by the older anatomists—and the dog, which is seen in the lower corner of the plate. The dog apparently does not appreciate the need of gravity at such an occasion, for he is barking, and the philosopher before him looks back with annoyance and points to Vesalius as a caution, while another spectator leans from above the reproving hand toward the two men who hold him.

Behind Vesalius the representatives of the Church are seen, two monks, and in the seats above and behind him is a nun, who seems to be the subject of some comment of those about her. Another female is seen in the colonnade at the right.

Scattered among the audience are men dressed as merchants of the time, practical individuals, interested in science nevertheless, and whose wealth was an asset to the carrying on of scientific work then as now. One of these on the right is viewing the scene through a lens which he holds to his eye.

In the whole audience there are but two books seen, an innovation indeed in the study of anatomy. One of these is closed, while in the other the reader evidently compares the written doctrine of the day with the innovations which Vesalius is demonstrating.

Behind the pillar on the left a nude man is seen, for Vesalius used such to point out the landmarks and contours of the organs on the living as he dissected them on the dead. On the right a fashionably dressed youth in slashed doublet gazes in fascination at the spectacle.

Such was anatomy in the time of Vesalius, a subject of general interest among the cultured, and these were the great contributions that he made to its advance—that the professor should learn and teach from the actual dissection and that such a rôle was worthy of the respect, and attention, and support of society as a whole.

The portrait of Vesalius shows a young bearded man, richly dressed and of proud bearing. There is, however, a larger portrait on the next page of the first edition showing him in 1542, twenty-eight years of age, which we have not reproduced. From it one can see the character of the man—the remarkably shaped head, the keen eyes, and the belligerently tilted nose.

Throughout the book are scattered the anatomical plates and diagrams. We cannot attempt a description of these dissections which seem to live and move before our eyes, but they will be a revelation to those who know only the modern type of anatomical drawing. For a proper realization of their contemporary significance in the medical sciences, ask the librarian to show you a previous anatomy, Mundino's for example, and see what a tremendous revelation they must have been to the world of Vesalius' day. For anatomy, too, had come a renaissance.

A final word about the figured capitals which head the chapters and books. They are comparatively small and might be overlooked, but showing as they do the life of the student of anatomy, they

give a vivid picture of that science in Vesalius' time. Amoretti are seen performing the various tasks which confront the anatomist. In one they are disinterring a stout cadaver; another shows the removal from the gallows of a female subject; a stomach is being inflated; a coffin broken open; a skull macerated in a boiling cauldron, and so on through all activities of the anatomist. But why continue with descriptions which might be endless—the book itself is accessible to all.

CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

REMISSION IN SPRUE FOLLOWING HIGH LIVER DIET*

CASE REPORT

By ARTHUR L. BLOOMFIELD, M. D.
AND
HARRY A. WYCKOFF, M. D.
San Francisco

THE similarity of many of the clinical features of sprue and pernicious anemia is well known, and the question has been raised as to whether there is not some actual relationship between the two disorders.[1] Since the cause in both cases is at present unclear, the point cannot be settled. However, in view of the brilliant results which have followed the use of a diet containing large amounts of liver in pernicious anemia[2] it was decided to try this form of therapy in a case of sprue. A prompt and striking remission was obtained.

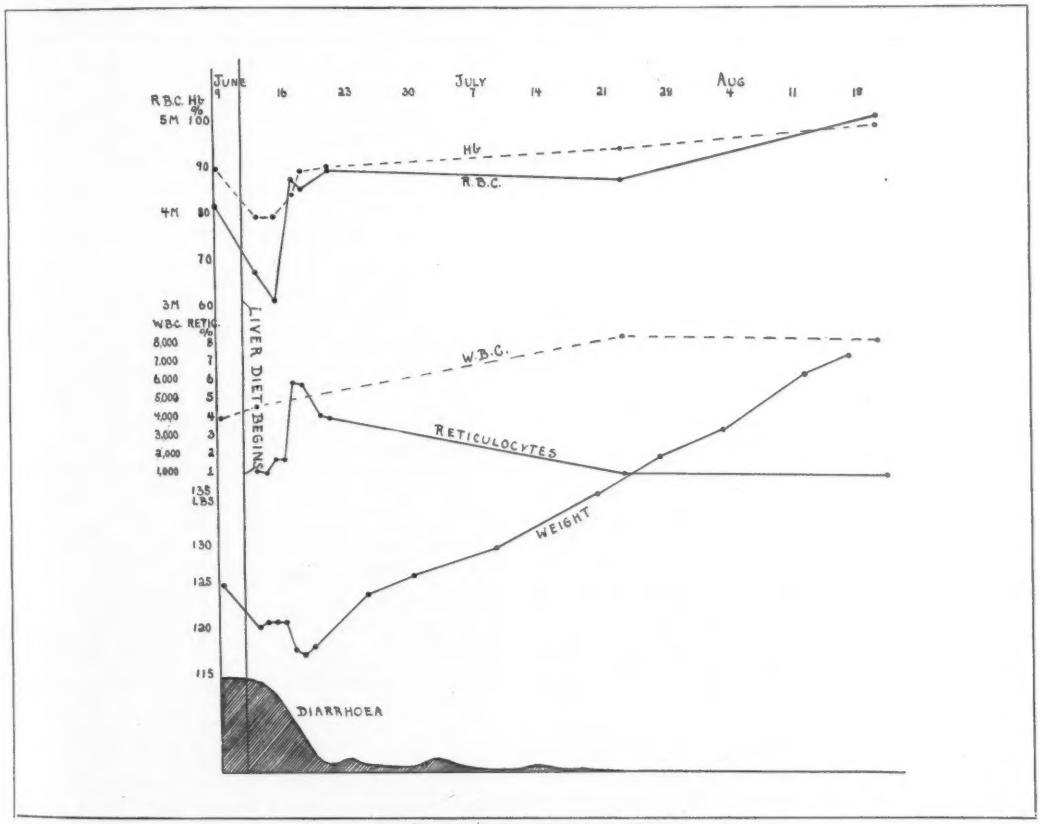
* From the Medical Department of the School of Medicine, Stanford University.

F. C. K., age 43, male (No. 51327), entered Stanford Hospital on June 9, 1927, complaining of weakness, diarrhea and sore mouth.

The past history was not remarkable; his general health had always been extremely good and there had never been any digestive disorder. In 1924 the patient went to the Philippines to "teach school" and returned to this country sixteen months ago. Two months later he began to have diarrhea. The bowels moved early in the morning, usually two or three or more times. The stools were extremely large, loose, pale and frothy. The patient was especially impressed by the bulk of the excreta; he saw no blood or mucus and there was no pain. Coincidentally with onset of the diarrhea the mouth became sore. There was a raw, burning sensation with successive crops of small "blisters" at the edge of the tongue and on the lips and gums. The appetite failed and he became progressively weaker. At times he was barely able to stand up. His average weight was about 135 pounds; at present he weighs 125.

He has had no systematic treatment but has used various astringents for the diarrhea and for the most part has been on a restricted milk-cereal-vegetable diet. There has been no tendency to improvement during the fourteen months of his illness.

On examination he was found to be thin and sallow. There was slight pallor without any suggestion of the yellowish tints of pernicious anemia. There was no atrophy of the lingual papillae, but along the mar-



Graphic summary of course of case

gins of the tongue were many small, flat ulcerations. There was one lesion on the lower lip. The heart and lungs were clear. The abdomen was slightly distended, not tender. Liver and spleen were not felt. The extremities were normal and no neurological disturbances were discovered.

The temperature tended to be slightly subnormal, the pulse on entry was 60, and the blood pressure was 90/60. The urine was clear and the Wassermann was negative. Gastric analysis (after Ewald Meal) showed free HCl, 2, total acid 15.

Numerous stools were examined. They were all pale, frothy, loose and very bulky. There was no mucus, blood or pus. No ova or parasites were found. There was an excess of fat in the form of crystals and droplets. Some small round bodies which might be *Monilia* were seen in smears, and cultures on Sabaraud's medium yielded yeasts. No *Monilia* were found in scrapings from the tongue.

The blood on entry showed: red blood cells (erythrocytes), 4,100,000; hemoglobin, 90 per cent; color index, 1.1 (Sahli)—1.37 (Dare); white blood cells, 4150; polymorphonuclears, 59 per cent; lymphocytes, 35 per cent; eosinophiles 4 per cent; basophiles, 1 per cent; transitionals, 1 per cent.

There was slight aniso- and poikilocytosis, and many large cells.

The diagnosis of sprue was made on the basis of (1) residence in the tropics, (2) the character of the diarrhea, and (3) the buccal lesions. Against pernicious anemia were the absence of papillary atrophy, splenic enlargement and neurological changes, the presence of free HCl, even though low, and the slight degree of the anemia.

After three days of observation and rest in bed, during which his condition was unchanged, he was placed on the high liver diet of Minot and Murphy.[2] No drugs or other measures were used. There was prompt improvement. In four days the ulcers on the tongue were entirely healed. The stools immediately became brown and less bulky, within a week they were pasty, and on discharge from the hospital on June 20 there were only one or two semiformed movements per day. He felt very much better and the appetite had improved.

During the summer the patient took courses at Stanford University and reported at frequent intervals for observation. Aside from the high liver diet and dilute hydrochloric acid with meals no treatment was prescribed.

On September 1 he felt perfectly well and weighed 150 pounds, a gain of 25 pounds in two months. The physical examination revealed nothing abnormal, the blood pressure was 120/85 and there was one (occasionally two) brown, formed or soft movements daily. He regarded himself as well.

The course is summarized in Chart I.

COMMENT

The results of administration of the high liver diet which has proved so effective in inducing remission in pernicious anemia were studied in a case of sprue. Prompt improvement occurred featured by (1) rapid cessation of diarrhea, (2) remarkable gain in weight and improvement in general strength and well-being, (3) increase in reticulocytes with rise of blood count to normal and establishment of a normal blood picture except for the persistence of some macro- and poikilocytosis.

Remissions in sprue occur "spontaneously" or following various methods of therapy, but the promptness and great degree of improvement after an uninterrupted downhill course for fourteen months suggest that the liver diet was the effective agent in the present instance.

Stanford University Medical School.

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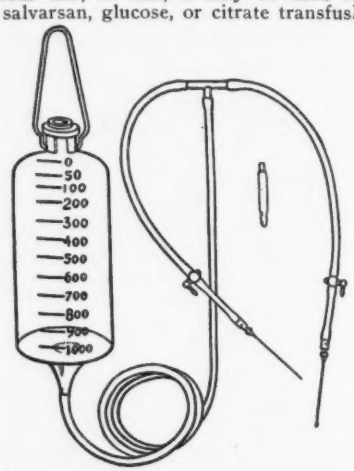
HYPODERMOCYLSIS

The set herewith presented is simple, efficient, and overcomes all the disadvantages of those hitherto employed. It is adapted to both subcutaneous and intravenous use; in fact, it may be used for intravenous salvarsan, glucose, or citrate transfusions.



For intravenous work the B-D Fordyce needles (assorted sizes) have been found ideal.

The apparatus consists of a graduated Kelly infusion jar, with pointed end, 1000 cc., the proper lengths of rubber tubing to make connection, two stopcocks, two Luer Lok adapters, two Yale needles 19 gauge 2½ inches, one glass T tube, and one glass observation tube.

Drug Store Shows Up Quackery—The average drug store carries so-called patent medicines chiefly because a certain proportion of the public is misguided enough to demand them. As there is a much smaller profit on such goods than on most of the other merchandise carried, it would be to the druggists' advantage to abandon this general line were it not for incidental sales of a general character.

Few have the courage to do this, but a drug store in Spokane goes one step farther according to the *Health Messenger* of Seattle, Washington, and actually advertises in its store windows:

"These Remedies Are An Insult to Public Intelligence."

"When Ill Consult Your Physician; Then Let Us Fill Your Prescription For You With Drugs of Value."

This idea commends itself as a really new form of health education.—*Health News*, New York State Department of Health.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

THE ELECTROCARDIOGRAPH—ITS PRACTICAL VALUE

Henry H. Lissner, Los Angeles—The more one sees of the bedside application of the electrocardiograph the more one is impressed with its clinical value. At the outset it is necessary to have a definite and clear understanding of what the electrocardiograph actually tells.

Its great worth is found in the recognition of heart muscle insufficiency and the arrhythmias. It gives very little information with regard to valvular diseases of the heart. In the interpretation of the tracing it is also extremely necessary not to read out of it more than is actually in it. Its place in heart diagnosis is dependent on the correlation of the clinical aspect of heart disease with the heart tracing.

Compared with other laboratory methods, and with the personal equation of the cardiologist under control, it is much more valuable and gives more exact data than any other diagnostic laboratory method. Its technique is definitely standardized and, unlike the x-ray, its interpretation is not subject to psychological quirks. If the interpreter follows accurately the known data of cardiography, two separate observers must have the same opinion of a given tracing in the greater percentage of all tracings. However, electrocardiography and its clinical application is still in its infancy, and there remain at present certain types of heart conditions in which there is an honest difference of opinion. These differences of opinion are not especially referable to the arrhythmias, except of ventricular origin. It has been noticed in the extra systole, where the beat does not come through to the radial pulse, that the electrocardiograph shows an excursion on the tracing much larger in comparison with the normal ventricular beat, and at the same time the palpating hand feels a greater precordial impulse. The exact significance of this fact is still in question.

A knowledge of electrocardiography is desirable for every practicing physician and specialist. Every doctor thinks he knows something about x-ray interpretation, but at medical meetings the description of a heart tracing is of interest to few physicians except the cardiologists. Few physicians ask for a heart study with the same alacrity or frequency as they do for an x-ray study of their patient.

Universities seem still to teach that the diagnosis of heart diseases necessitates the presence or absence of a murmur, and the modern intern nearly always will think of heart diagnosis in these terms. The "Leistungsfahigkeit," or the actual measure of the function of the heart muscle is usually a secondary consideration; and yet from actual bedside practice its determination is the only definite prognostic adjunct which is of value to both clinician and patient. The knowledge of the elements of an electrocardiograph places the individual at the end of the auscultating stethoscope in a more analytical and alert frame of mind. It helps him separate the elements of the cardiac cycle and evaluate abnormal sounds with greater accuracy.

There should be a more intimate association between the cardiologist and the general practitioner. The cardiologists should be given a few salient points with regard to the clinical findings and symptoms of the patient in order that certain types of heart-tracing curves and deviations from the normal might be studied and statistics compiled from them. The general practitioners should understand the types of tracings that they may have a clearer understanding of the technical reports on their patients.

Many times the electrocardiograph will indicate a disturbance of heart function where auscultation fails to elicit anything other than weak muscle tones or indefinite murmurs. Examples of these are disturbances of conduction, right and left bundle branch block, arborization block, toxic myocarditis, postflu, and many other secondary heart muscle deficiencies.

An electrocardiographic tracing is of special value to the surgeon. Many deaths which follow operations might be prevented if the surgeon had a better knowledge of the heart function before the operation. There are many conditions in which elective surgery is done in which, because of this lack of study, a fatal result takes place. In fatalities from operations for thyroid diseases, gall-bladder disorders, hysterectomies for fibroids, and prostatectomies the cause is often ascribed to emboli. Many of such deaths are due to simple heart insufficiency, which an electrocardiograph would have detected in case the stethoscope had previously failed. It is just as important for the surgeon to know about his patient from an electrocardiographic standpoint as to have information from an x-ray, cystoscope or other laboratory machine. It should be considered just as negligent for a surgeon to operate on a patient without having made a careful study of the heart

as it would be for him to set a fracture without the x-ray as a guide.

* * *

J. Edward Harbinson, Woodland—Knowledge of the field of usefulness and practical value of the electrocardiograph is gradually becoming more disseminated. The average physician still regards this instrument of precision as an expensive toy of the cardiologist and knows very little about its practical application in the elucidation of the cardiac arrhythmias; the importance of the curves in estimating the degree and type of myocardial damage; and the value of the graphic finding in prognosis and treatment.

As with any laboratory procedure the electrocardiogram should never be the sole means of estimating the patient's cardiac status. The history, physical findings, and the simple clinical tests for estimating cardiac function should always be the fundamental factors in diagnosis.

A great majority of the cardiac irregularities may be identified without the aid of graphic tracings. The commonest of these, sinus arrhythmia, although easily recognized and of no clinical importance, is often erroneously interpreted as a serious disorder. There may be some difficulty in differentiating between extra systoles and some forms of fibrillation without much arrhythmia, or conversely, when extra systoles are very frequent.

It is generally known that extra systoles usually disappear after exercise; however, it is not so well known that they may be increased by exercise if the heart muscle is severely damaged. An auricular flutter with irregular ventricular rhythm may be mistaken for a fibrillation, or fibrillation with partial or complete block may simulate various other types of irregularities. A heart block manifests itself in a variety of forms. Many similar variations in the other types of cardiac irregularity are confusing. An exact diagnosis is often the key to treatment and is of invaluable aid in prognosis.

In the absence of clinical symptoms we depend upon alteration in the character of the heart sounds, degree of cardiac enlargement, valve lesions, hypertension, arterial changes and inferences drawn from other findings to estimate myocardial damage. Diagnosis of myocardial insufficiency based solely on these factors is often unreliable. It is in this field that the electrocardiograph is most useful. Signs such as an increased P-R interval or heart block, bundle branch block and other types of ventricular block, abnormal inversion of the T deflection, give us direct evidence that the myocardium is not normal.

Considering these findings in conjunction with our history and physical examination we are able to give the patient a much more satisfactory and reliable opinion regarding how much work his heart is able to do and whether the condition is transient or permanent.

Tracings in cases of acute infectious diseases like diphtheria, influenza, and pneumonia often give us a clearer understanding of the toxic effects of the disease on the myocardium than the evidence we are able to obtain clinically.

The electrocardiogram is a valuable guide in the administration of digitalis, quinidin, and other drugs used in cardiac therapy. By following the changes in the P-R interval and in the form of the T wave, which digitalis produces, the administration of this drug may be controlled intelligently. At times digitalis may produce serious cardiac poisoning without nausea or vomiting. Quinidin and quinin derivatives should never be given unless we have the best knowledge obtainable on the condition of the cardiac musculature. These drugs may give rise to complicated disturbance in rhythm and serious disturbance in conduction if given to patients with marked myocardial changes.

With an exact diagnosis of the type of cardiac irregularity and a more accurate knowledge of the condition of the heart muscle than may be acquired through clinical examination alone, the physician, through the aid of the string galvanometer, is better prepared to answer the questions of the patient in regard to prognosis.

The electrocardiogram is a permanent record which often tells a more accurate story than the description of the clinical findings on the day the tracings were taken. Periodic tracings give an accurate résumé of the patient's progress to supplement the descriptive record.

The frequent use of the electrocardiograph to confirm diagnosis of cardiac arrhythmias and to estimate myocardial insufficiency helps the physician to reach and maintain a high degree of proficiency.

It is hoped in the future that greater use will be made of this instrument by the general practitioner. The patient and physician alike will profit greatly by the additional practical information given by the tracings in cases of suspected or true myocardial disease.

* * *

John C. Ruddock, Los Angeles—The portable electrocardiograph, recently developed, has suddenly awakened the medical fraternity to its value as a diagnostic aid. Unfortunately, because there have been only a few electrocardiographs available in any given locality, and because the instruments are delicate and require trained technicians, their use has been restricted in the past to only a few cardiologists. This explains why the average physician regards electrocardiograms as too complicated and mysterious to understand, whereas they are quite simple. This is unfortunate, for the patient thus fails to get the benefit and value of an examination that would help more accurately to diagnose and prognose his condition.

The electrocardiograph, like any other laboratory instrument, should never be used *per se*, but as an adjunct to a careful history and physical examination. With its aid we are able to demon-

strate with a graphic tracing, serious myocardial changes, which cannot be proved by any other means; and we are also able to classify accurately the various cardiac irregularities and arrhythmias.

The electrocardiogram enables one to analyze 96 to 98 per cent of the arrhythmias, which is perhaps 6 to 8 per cent more than can be worked out by the tracings taken by the polygraph. It gives detailed information as to the origin and passage of the contraction wave over the heart. It helps to elucidate many points observed clinically and on which the pathologist cannot offer any assistance. The various arrhythmias frequently do not display the typical picture and are then not easily diagnosed by the non-instrumental methods of examination, and when two or more of these functional conditions are present in combination the problem is often too obscure for ordinary bedside diagnosis. The detection of impaired conduction in the ventricle and the accurate differentiation of the ventricular type of paroxysmal tachycardia from that of auricular origin, both of which are of distinct importance in prognosis, are dependent upon the use of the electrocardiograph. In regard to which valve, if any, is affected, the electrocardiogram offers evidence of but indirect value and not infrequently is of no assistance.

Electrocardiography may be said to have two distinct limitations: (1) it usually fails to demonstrate pulsus alternans, and (2) there are a few electrocardiograms which are difficult to interpret. With experience the latter tend to become rarer. The use of the electrocardiograph forms, of course, but one of the methods of cardiac examination, and to be most helpful must be employed with proper cardiac examination. It should not be allowed to lessen one's efforts to make accurate diagnoses without this aid, but unmasked the failures, by its use, should react like similar postmortem reports—to guide and stimulate effort toward greater efficiency in diagnosis.

The ability of the heart to perform work depends entirely on the condition of the heart muscle. It is not difficult to detect a dilated heart, auricular fibrillation, or any of the common valvular lesions with their accompanying signs, but it is difficult at times to detect, clinically, sclerosed coronary arteries, branch bundle lesions and infarcts. A coronary sclerosis or thrombosis gives characteristic changes in an electrocardiogram and may be the one deciding factor concerning the advisability of operating upon elective cases.

Surgeons should require more careful heart examination on all elective operative cases over 40 years of age, and this examination should include an electrocardiographic tracing. A hurried auscultation by an anesthetist just before operation is of no value, as it gives no clue to the status of the myocardium, which is the controlling factor. The surgeon is given a false security; whereas, were the myocardial condition fully reported, the operation could be so arranged as to minimize any cardiac embarrassment or be abandoned entirely. The surgeon who has electrocardiograms done routinely on all of his elective operative cases over 40 years of age very materially reduces his postoperative cardiac mortality.

The differentiation between flutter, paroxysmal tachycardia and fibrillation is sometimes very difficult to determine clinically, but is fairly simple with a tracing. The successful treatment in these cases depends entirely upon the correct diagnosis.

The standardization of electrocardiograms eradicates the personal element so often found in x-ray interpretations, and leaves a permanent record for comparison with later tracings. The type of machine used makes no difference, as the tension of the string is always standardized before the tracing is made so that one millivolt displaces it 1 centimeter.

Too much emphasis cannot be given to a careful history, physical examination and the usual laboratory procedures in any heart examination. An examination, however, is not complete without an electrocardiogram, as it may be the deciding factor in explaining such clinical findings as muffled heart beats, gallop rhythm, low blood pressure, cardiac pain, shortness of breath, epigastric distress, tachycardia, extra beats, bradycardia, effort syndrome and arrhythmia. With the aid of the electrocardiogram as an adjunct to our examination, we can give a more accurate opinion and prognosis and regulate more intelligently the life of our patient in conformity to the condition of his heart muscle.

The practical value of this machine then depends upon its more general use by the average physician and surgeon, both as a diagnostic and prognostic aid and as a measure of myocardial competence in preoperative examinations. Its value as a means of differential diagnosis of the various arrhythmias and irregularities has long been known.

In the words of a master, Thomas Lewis: "Electrocardiograms have placed the entire question of irregular or disordered mechanism of the human heart upon a rational basis, so giving the worker the confidence of knowledge; they have influenced prognosis and have rendered it more exact; they have potentially abolished the promiscuous administration of cardiac poisons, and have clearly shown the lines which therapy should follow. These records used as clinical observations have stimulated and directed a host of laboratory researches, anatomical, physiological, pathological, and pharmacological, of a valuable nature."

* * *

William J. Kerr, San Francisco—The increasing popularity of the electrocardiograph indicates that this instrument or something similar has come to stay in the realm of diagnostic procedures. One cannot do internal medicine today in a thorough manner without having the service of an electrocardiograph at his disposal. I agree with those who have already discussed the subject, that the electrocardiogram is merely an aid to diagnosis just as the x-ray film, the Wassermann reaction or the blood count may be, and should be used in its proper relationship to the conditions found on examination of the patient.

I think it may be said safely that if the clinician would constantly take the electrocardiographic findings back to the bedside and correlate them with the findings derived by the use of his own special senses it would soon be possible for him to dispense with the use of this instrument on most occasions. In other words, we should seek, in the use of the electrocardiograph, to develop our special senses so that ultimately we may dispense almost entirely with the use of this aid. This skill, however, cannot be acquired by the use of books alone, but must depend particularly on the application of the method to the bedside.

The previous commentators have covered all the main points in regard to the use and value of the electrocardiographic method. I wish only to emphasize the following facts: First, an electrocardiogram may verify the impression we have as to the nature of some irregularity in rhythm. Second, it gives us evidence of preponderance of one side of the heart over the other, which preponderance may be due to valvular lesions, high pulse pressure, openings in the septum of the heart, and other structural disturbances. Third, it gives evidences of altered conduction time which may be based upon structural or circulatory changes or upon the use of drugs; and last, it demonstrates changes in the ventricles which are usually upon a circulatory or conduction system basis which may not be expressed clearly in any other way than by the use of this instrument. As one's skill in cardiovascular diagnosis improves, one finds fewer and fewer instances where the electrocardiogram will add much to the impression already gained. It is in a particular group of conditions with myocardial damage and altered conduction in the ventricles themselves that the electrocardiogram may show distinct abnormalities. Even in these cases, however, the patient may show, on examination, a very faint or blurred first sound which is much fainter than the second heart sound at or near the apex. Very often in these cases there is a history of coronary occlusion and the electrocardiogram may show evidence of bundle branch or arborization block.

One very important point which should be always kept in mind is that many patients who have failure of the heart muscle with generalized edema show very little evidence by the electrocardiogram that there is any myocardial disturbance. Therefore the clinician who has such a patient should not be misled by the negative electrocardiographic findings. This merely emphasizes the point already made that the electrocardiograph curve should only be considered in conjunction with the clinical findings.

Although in recent years a great deal of attention has been paid to the T waves, many of the fundamental facts relating to the nature of the T wave and its variations in disease are still unknown. However, the shape and direction of the T wave is of great significance in prognosis as well as in therapeusis.

There are a good many uses for the electrocardiograms for purposes of identification, and for determining the presence or absence of pericardial adhesions or effusions by certain well established technical methods. In displacements of the heart to the right, it is possible to show that, in a given instance, we are dealing with congenital displacement due to a complete transposition of all the organs or to displacement due to adhesions in the chest or to tumor masses.

An Address to the Wayne County Medical Society, by Honorable Fred W. Green, Governor of Michigan

—I believe all too little time is spent in our public schools apprising the coming generations of the heroism and supreme self-sacrifice and unselfish devotion of you men of science—both in the past and in the present.

A Lindbergh can fly across the sea and his name is on every tongue, and his most worthy feat will probably never be forgotten. He doubtless did great good, and his heroic feat may turn out to have led civilization another step forward. But how many of us, old or young among the laity, know the story of the conquest of yellow fever or smallpox, or diphtheria and those other dread maladies over whom you will be able to stand victor in a short time. Gentlemen, we say all too easily, "Peace hath her victories no less than war," but the heroes of mankind are still too easily recruited from the ranks of Mars. I would have every child know the story of Jenner, Pasteur, Lister, Gorgas, and others, as they know about Washington, Napoleon, Lincoln, or Wellington. This, I understand, has been started by your Joint Committee on Public Instruction, and I commend it.

Certainly it is a legitimate and worthy work, this your society can carry on with our education.

My second plea as a layman is to implore you to maintain among your medical students those high ideals of service that have characterized your profession in the past and won it the high position it now holds in our hearts.

Two dangers stand tempting the modern medical student. One is the lure of high fees. Perhaps we laymen have encouraged you in that. The other is the passion for the science of medicine in the abstract.

Whenever a medical student regularly gets so interested in the progress of a case as it develops as to lose sight of the fact that it is a human being in distress, then his place is in the laboratory and not at the bedside. No doubt we need men to delve in the laboratory and not at the bedside. No doubt we need men to delve in the laboratory with test tube and microscope; but even there I do not doubt but that the man who gets the results, who works tirelessly, is the one who sees human beings tossing on beds of pain and pants with eagerness to aid them.

For my last suggestion I fear I am treading on sacred ground. Forgive me if I misstep, for I have only the desire to help you and the public to get closer together. It is difficult for the average layman to understand the difference between ethical and unethical conduct. Of course I am not referring to the extremes where common notions of decency and law would advise a man. I am thinking of that borderline that perhaps troubles you at times—when you wonder what is proper publicity and what forbidden.

As a business man I cannot see why the tremendous weapon of newspaper publicity should be snubbed by you and left as a terrible weapon in the hands of quacks and charlatans. I am not pleading now that you devise some way to use publicity for your own sake. You do not need it. But I ask it for the sake of the public. Perhaps you say that the public should discriminate. But surely your experience in homes where you see the lack of ability to discriminate in such simple matters as proper eating, will tell you that too much cannot be expected of us laymen in the matter of discriminating intelligence.

So I believe that one of the finest things you members of the Wayne County Medical Society could do would be to make an earnest effort to discover ways of educating the public in how to choose their doctor.

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EDITORIALS

TWENTY-FIVE YEARS AGO

Twenty-five years ago the California Medical Association, then known as the Medical Society of the State of California, upon the initiative of one of its younger members, the late Philip Mills Jones, established its official publication, the *California State Journal of Medicine*.

In March, 1924, upon the suggestion of its then editor, the late William Everett Musgrave, the name of the official California publication, after it became the accredited representative of the Nevada and Utah State Medical Associations, was changed to CALIFORNIA AND WESTERN MEDICINE.

* * *

The California Medical Association may well be proud of the vigorous manner in which its journal sprang into existence and for the valiant and efficient way in which it battled for a widespread organization of the medical profession and the elevation of the standards of medical education, licensure and practice.

Its founder, Philip Mills Jones—for if this journal had a founder, he more than any other one man was its sponsor—was no mollycoddle type of man. He was a clear thinker, a clever editor, a fighter. He was human, very human, both in his weaknesses and in his strength. He made enemies, but he likewise had strong and devoted friends. He was proud of the profession of medicine; loyal to its principles and to its members, and his beliefs, as printed in the columns of this publication, played a very considerable part in the upbuilding of our State Medical Society at a crucial time in its existence.

He is no longer with us, for with a host of other colleagues who were once part of us in the brunt of the fray, both in civil practice and in medical society organization work, he has gone on into the Great World Beyond. We are grateful that these men lived and played their parts so well, and that it was our good fortune to know them and to profit through association with them. May their souls rest in peace.

* * *

Just as they came and went, so in good time each of the rest of us who have come, in equal measure, will go. And in the rush of daily work and responsibilities only a few will pause, to linger and consider, in contemplation of such small deeds of good and of service as it may have been our fortune to have rendered.

Yet in an organization such as ours, where we are all bound together by ideals of service in a profession that labors for the conservation of human health, the prolongation of human life and the alleviation of human suffering and disease, we are through such service brought together in many respects, as are the members of a family who are bound together by blood and the inherited tendencies of their forbears.

A blood family group whose members ignore the traditions of their blood, their forbears and race, rarely amounts to much. Honest, respectful pride of lineage, in order to live up to the best of one's forbears and blood, is desired by all who would make of themselves human units whose existence warrants a reason for being.

So also, in an organization such as this great California Medical Association—one of the large state medical societies of the nation—it may be worth our while to pause a bit from time to time and think for the moment of some of the aims and achievements of those who labored in our organization in the years gone by.

The early history of the medical profession of California is still to be written, and the official journal in which a monthly survey of the work of our society is presented on printed page goes back only a quarter of a century. Not very long, as judged by the history of man, but what wonderful, massive years in the forward movement of scientific medicine!

* * *

In November, 1902, just twenty-five years ago this month, Volume 1, No. 1, of this journal was printed and mailed. The memory of our older members will carry back to that time in recollection of its advent among them. Yet how few, how very few among them have bound volumes thereof. As a matter of fact, Volume 1, No. 1, has even disappeared from the file in our central office, and the editors would be glad to acknowledge the gift from any member who could again

re-establish for the Association the complete sequence of the file of its official publication.

* * *

These remarks suggested themselves as a prelude to the introduction of a new column which is inaugurated in the Miscellany department of this issue, and which will appear under the caption: "Twenty-Five Years Ago."

We commend this column to our members: both old and new. It will harm none of us to know the stand colleagues who are still with us took on this, that and the other subject. And if it remind some of us who had the pleasure and honor of knowing some of the stalwarts who are no longer with us, of what was the attitude of those colleagues, now dead, on the issues of their day, that also will be good and heart satisfying.

* * *

For member colleagues who have not been long in California, and for recent graduates from both in and out our state, the column will be worthy of perusal as showing that twenty-five years ago the California Medical Association was functioning in much the same way as at present, with equally high ideals and record of good work; and that its members of that time, in measure equal to that of today, were performing their duties in civil and hospital practice, painstakingly, alertly, and by the standards and knowledge of their day, quite as scientifically and as efficiently as we do today who still carry on, whether we be members of the this California profession a few or many years.

The Twenty-Five Years Ago Today column will not be an interpretation by the editors, of how we today view what was done then, but will be a matter-of-fact presentation by actual quotation of what our colleagues at that time felt and did. And because of such literal quotation it will be worth just that much more to all those who believe that a knowledge of the past makes for a better present and future.

THE BUBONIC PLAGUE—DOES HISTORY REPEAT ITSELF?

It is just a quarter of a century since America had its first visitation from bubonic plague. The discovery of its presence in San Francisco led to an acrimonious exchange of opinions in which state and city executives took issue with the medical societies and federal public health authorities; the two former contending that the epidemic then prevalent was not, and the two latter insisting that it was, true bubonic plague. By the march of the events which followed, the federal government and the medical societies were sustained.

Today we all know that at that time bubonic plague, that dreaded scourge of the Orient, made its appearance in California; and also that during the same period the modern-day method of attacking the disease at its dangerous source to man —the rat—was worked out.

Reference to the San Francisco outbreak is made in one or two of the paragraphs which are to be found in the Twenty-Five Years Ago column in the Miscellany department of this issue of CALIFORNIA AND WESTERN MEDICINE; and in succeeding issues further excerpts thereon will be printed in that column.

To give in this issue the word-picture of these various comments a more composite setting, and because adequate prevention measures are still being fought for, the Los Angeles outbreak of 1924 is further discussed in this issue. Articles in the Current Comment and Medical History columns of the Miscellany Department of this issue of CALIFORNIA AND WESTERN MEDICINE will shed some interesting sidelights on what recently took place in Los Angeles, and what transpired in London in the seventeenth century.

* * *

In the intervening twenty-five years which have elapsed since the San Francisco outbreak, the cities of Oakland, California; Galveston, Texas; New Orleans, Louisiana; and Tampa, Florida, have gone through outbreaks of this much feared disease. Each of those epidemics took its toll of death among human beings, and each of those outbreaks meant not only a heavy expenditure of money in an immediate attempt to overcome the disease, but also a very large indirect loss to the commercial and other material interests of those cities, until other states in the Union and the outside world felt they could again safely carry on business relations with residents of the infected communities.

In every instance the federal authorities through the United States Public Health Service promptly went to the aid of state, county, and city health authorities to get prompt control of the epidemics, so that the other seaports in our own and foreign countries would not place an embargo on the ports of the cities just named.

Each of the above-named cities followed up its sad experience by the enactment of local ordinances designed to prevent a recurrence of such outbreaks.

* * *

Public health authorities in our own and European countries are agreed that, after plague once establishes itself in the rodent family (especially among rats, and in California, squirrels), then in order to keep outbreaks of the disease from occurring among human beings it is necessary to keep the rodent, and especially the rat population, down to a minimum. How is this end to be most efficiently attained?

The highest authorities in the United States Public Health and Federal Biological departments are agreed that rat-trapping and rat-poisoning are only palliative measures; and that rat-proofing requirements for buildings, which prevent rats from gaining access to easy shelter and breeding and food supply places, must form the basis of all logical preventive measures against the bubonic plague.

* * *

Not in any desire to give undue publicity to the bubonic plague outbreak in San Francisco

twenty-five years ago, or to the Los Angeles outbreak three years ago, but to permit the medical profession to go on record as in favor of rat-proofing building requirements, these comments are here made.

Perhaps in a near issue it will be possible to state that the proposed Los Angeles rat-proofing ordinance has become a law. If so, the public health interests of California will have secured an additional safeguard.

There is no physician, no matter what his specialty or calling may be, who has not a personal obligation in this. Knowledge is power. Physicians, like other humans, must know just what they are talking about. Bubonic plague in California came to us twenty-five years ago. It has come several times since that time. We may rest assured it will come again. As a matter of fact it has never been fully eradicated from the rodent population. The medical profession has definite opinions concerning this disease and how it may be prevented. This journal is an official publication of the profession, and it fulfills some of its obligations to the citizens of the state by telling what those preventive measures are. That is why the matter is discussed from different angles in this issue.

CALIFORNIA UNDERGRADUATE MEDICAL SCHOOLS: ITEMS OF HISTORY; THEIR DEANS

California has three medical colleges rated as "Class A" by the Council on Medical Education and Hospitals of the American Medical Association. These are:

The Medical School of Stanford University, which carries on its preclinical work at Stanford, and its junior and senior courses in San Francisco;

The School of Medicine of the University of California, located at Berkeley and in San Francisco;

And the College of Medical Evangelists, which conducts its freshmen and sophomore years at Loma Linda, near Riverside, and its upper class work in Los Angeles.

* * *

The schools of the two noted universities of the North are the successors of pre-existing medical institutions in San Francisco:

Stanford University having taken over in 1908 the Cooper Medical College, which in turn had come into existence in 1882 through the union of the Medical College of the Pacific (established in 1872) and the medical department of the University of the Pacific (founded in 1858 by Dr. Elias Samuel Cooper);

And the University of California having taken over the Toland Hall College founded in 1862, the nominal affiliation with the University of California taking place in 1872, and the change into an active department of the state university being made in 1902.

* * *

In southern California, the first undergraduate medical school to come into existence was founded in 1885 by the University of Southern California. Its sponsor and first dean was J. P. Widney, M. D., still living, who later became president of the University of Southern California. In July, 1909, this medical school, which had an affiliation with the University of Southern California similar to that of Toland Medical School with the University of California during the period 1872 to 1902, was absolved from its allegiance to the University of Southern California, and became a department of the University of California, continuing undergraduate medical teaching as such until 1914. In that year the department ceased its undergraduate work to give instruction only in clinical courses for graduates of medicine.

In 1903 another medical school, known as the College of Physicians and Surgeons, came into existence at Los Angeles, and in 1909 took the place of the former medical department of the University of Southern California, as just noted, and continued as such until the year 1920, when it suspended its work.

A third medical school came into existence in southern California in 1909 under the name of the College of Medical Evangelists, the institution being under the direct control of the Seventh Day Adventist denominational organization. Just as students in the North divide their time between Stanford and San Francisco, and Berkeley and San Francisco, so in the College of Medical Evangelists, which is the only undergraduate medical institution now existing in southern California, the students divide their time between Loma Linda, near Redlands, where the work of the first two years is carried on, and Los Angeles where provision for the junior and senior class work exists. In the news column of the Miscellany department of this issue is printed some further information concerning the College of Medical Evangelists, which in many ways is a somewhat unique institution and concerning which many members of the profession in California have only a rather limited knowledge.

* * *

The surveys which have been made of medical institutions in the United States by the Rockefeller, the Carnegie, the A. M. A. and other organizations, have practically all stressed the desirability that at least three high grade medical schools should be located on the Pacific slope. The three cities mentioned as sites for such institutions were San Francisco, Los Angeles, and Portland.

At this time California has three "Class A" medical schools, namely, Stanford, the University of California, and the College of Medical Evangelists.

A group of colleagues in southern California have been agitating for some time the organization of an additional undergraduate medical institution, to be attached as a department of one of the universities represented in that section. What the outcome of these efforts will be is difficult to foretell, especially in these days when so tremendous an endowment is necessary if a high standard school is to be properly launched, and when

so severe an apprenticeship must be gone through by new institutions before a "Class A" rating can be obtained from the governing bodies which supervise the medical institutions of the United States.

* * *

The medical schools of California now existing have all measured up to high standards both in performance in the work which they have carried on, and in their graduates.

William Ophüls is dean of the school of medicine of Stanford University. He is a colleague who is so well known from one end of the state to the other through his devotion to the advancement of scientific medicine, and has given of his work so often at the annual sessions of the California Medical Association that he needs no introduction to members of the C. M. A. He has the good fortune to have in back of him a colleague who preceded him as dean, and who now has the honor of being president of Stanford University, Ray Lyman Wilbur, who likewise is so well known to Californians and to members of the California Medical Association as to need no comment.

The medical school of the University of California has been working under an acting dean, L. S. Schmitt, for a number of years; but in the last month Robert Langley Porter, a San Francisco colleague, whose work as a pediatrician and as a teacher in the University of California medical school has made him very well known both at home and abroad, has been called to the deanship by the regents of the university. Doctor Porter has been spending the last three years in Europe in special study, and as he now comes back to take up his administrative and teaching duties, the good will of the medical profession of California is extended him in his new work.

In the Southland, where the College of Medical Evangelists exists, the president, Newton Evans, who is in charge of the department at Loma Linda, is quite well known. Equally prominent is the dean of the Los Angeles division, Percy T. Magan, who has not only accomplished remarkable results against tremendous odds, but who has also found time to respond to every call which organized medicine has made upon him.

* * *

California can be proud of these administrative officers who head their undergraduate medical institutions. The California Medical Association takes pride in the high "Class A" ratings which each of these medical schools has maintained, and is in hearty sympathy with the faculties of the respective institutions in their efforts to make the standard of medical education in California measure up to the best in America and abroad. In future issues, perhaps in the Medical History column, which it is designed to bring into existence in our journal, it may be possible to give some very interesting accounts of the past of some of the older colleges. The early days of these California medical institutions, their faculties, students and graduates, are not only full of interesting historical fact, but also at times carry one almost into the realm of romance.

A new food-poisoning organism discovered by a microbiologist of the Bureau of Chemistry, United States Department of Agriculture, may possibly aid in explaining many poisoning cases that could not be attributed to organisms of the common food-poisoning group. Organisms of the latter group—known scientifically as the paratyphoid-enteritidis group—are the only ones hitherto recognized as a cause of intestinal disturbances. The new organism, although it has not been identified as any well-defined species, belongs to another group. In appearance it has much in common with the ordinary lactic types used in the preparation of "starters" for butter and cheese making.

The new organism was first believed to be a source of food poisoning when B. A. Linden of the Bureau of Chemistry found it in a sample of imported cheese held responsible for an outbreak at Biddeford, Maine, in 1925. Milk cultures of the organism were made and fed to cats in which violent intestinal disturbances were produced within a few hours. The same organism has since been isolated in two other outbreaks, in both of which cheese was the one article of food eaten by all persons affected. Organisms of the old group of food poisoners, so commonly reported to be the cause of food-poisoning outbreaks, were not found. In each of these outbreaks the streptococci, the group to which the newly found organism belongs, were recovered and fed in milk cultures to cats with results like the first trials.

So far no sickness has been produced in experimental tests except when milk was used as a culture medium. The organism will grow and multiply on meat and other media, however, and this may possibly leave many avenues open for contaminating human food.

Dr. Charles Thom, in charge of microbiological work for the Bureau of Chemistry, regards the discovery of this organism as the most outstanding achievement of the year in his field of investigation. He further suggests that while there is no general danger from this source of poisoning it does offer another forceful argument for the pasteurization of milk before using it in manufacturing dairy products. —*J. Iowa M. Soc.*

Conquest of Diphtheria—The readers of this journal are familiar with the notable work in the city of Auburn, New York, in the attempt to demonstrate the eradicability of diphtheria, and during the course of the work we have had papers by the health officer of that city read at our meetings and published in this journal.

March 8, 1927, marked the end of the third year during which period no death from diphtheria has occurred. In the city of Auburn during 1926 only seven cases of the disease were observed, as against eighteen for 1925. During the present year seven cases have developed, four of which were in one family. Three of them had been treated with toxin-antitoxin mixture, but they had not had time to develop full immunity, though the beneficial action of the vaccination was manifested by the mildness of the disease. Of the remaining three cases one was in a boy, and one was in a baby, neither of whom had been immunized, while the third case occurred in a child who had received a single dose of toxin-antitoxin three years previously.

We have noted with great pleasure the widespread publication of these results in the daily press. One such example as Auburn has given is worth many years of talking. We believe that Auburn has demonstrated that complete eradication of diphtheria is possible. The experience in that city will make it easier for other cities to adopt the eradication plan, and even to extend it to the full acceptation of the Seymour plan.—Editorial, *Am. J. Pub. Health.*

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Gastrointestinal Disorders

"Colon Filling Stations"—In the *Journal of the American Medical Association,* page 1023, of the issue dated March 26, 1927, is found a letter to the editor, written by Anthony Bassler, M. D., of New York. It is published under the above title, and is both instructive and entertaining.

After an interesting explanation of the ebb and flow in the use of colon irrigations in Europe, Doctor Bassler calls attention to what took place in America. He quotes: "The profession and laity in our country, quite ignorant of all that Britain and Europe had gone through in this treatment, were fertile soil mentally for the recent 'great discovery' of this beneficial procedure. A nonmedical 'discoverer' of this time-worn method rose among us, and many of the profession as well as laity fell for it, dorsal, right, side, and some on their knees. . . . The number of filling stations has increased throughout New York City until today they are almost as numerous, and the signs on some of them are distinctly more conspicuous than gasoline stations."

Doctor Bassler then proceeds to set colon irrigation in its real and correct position, evaluating it in his own direct manner for exactly its real worth. He says: "Colon irrigation per se is practically a worthless procedure unless it is combined with other therapeutic measures. There are a few indications for colon irrigations for a short time, but in routine work there are far more occasions in which they are contraindicated, and still more in which they are useless. . . . On the other hand, colon irrigation is of value as a therapeutic adjunct at times, and combined with other measures it may be worth while."

In closing his remarks the doctor writes: "In 1926 forty-seven patients came to me who had been treated by colon irrigators who were not physicians, most of them proprietors of typical filling stations. . . . In the forty-seven cases referred to were two cases of carcinoma of the colon; five cases of pulmonary tuberculosis with ulceration in the ileocecal region; eight infected types of ulcerated colitis; two cases of pernicious anemia; six instances of cardiovascular renal disease; and one case of Paget's disease—in all, twenty-four instances of persons who had gone to these stations and were treated without diagnosis. Of the twenty-three remaining none had a condition which required colonic irrigation. At $5 a washing, $4165 was paid out for treatment which was not required."

Doctor Bassler's humorous sarcasm is a timely thing. We need, all of us, to understand the viciousness of the enema habit. In fact, it is second only to the cathartic habit. To continually go into the bowel and wash away normal secretions that need to be there to keep the highly specialized tissue of the colon in condition is highly inimical to good health. In fact, it produces that which the physician would cure by his treatment. It is harmful to continually use the enema for moving the bowel; but it is still more so to go into an empty bowel and irrigate it so thoroughly with all kinds of solutions.

From data secured from patients, I have recently been making up a list of fluids used for enemata and colon lavage at the suggestion of friendly neighbors, "healers," and I am sorry to say, physicians. In a short time I have listed the following: milk, honey, molasses, glycothymoline, kerosene, buttermilk, acidophilus culture, lemon juice, orange juice, flaxseed, etc. Most every "filling station" has its pet theory of some wonderful fluid with which they can wash out the colon and have the evil symptoms disappear. This process is producing endless harm and an untold amount of colitis. The medical profession should not hesitate to call attention to this evil practice.

R. Manning Clarke,
Los Angeles.

Radiology

Failure in Therapy of Carcinoma—It is commonly asserted that failure in cancer therapy is due to the institution of radical treatment too late in the course of the disease. Theoretically, the earlier the lesion is discovered, and the more localized it is, the more successful should be the treatment, whether radiologic or surgical. Practically, this works out in the majority of the cases, but frequently an apparently innocent and localized lesion, the excision of which is a minor procedure, is the focus of extensive secondaries. In other words, massive metastatic areas found throughout the entire organism may come from a small local, almost unrecognized lesion.

This brings us to the crux of the problem; neither our clinical experience nor our diagnostic ability is able to visualize accurately the actively growing edge of any malignant growth. Handley's masterpiece on carcinoma of the breast shows us that this edge is sometimes quite distant from the original focus.

Surgical treatment is based on the wide excision of the tumor so as to include the "growing edge;" if this is accomplished a "cure" is the reward, if not, recurrence is the penalty. Radiological treatment is based on the thorough radiation of the primary lesion as well as the gland bearing areas that drain the lymph from the infected area. In both instances, however, the treatment is essentially local. Too often, the disease is outside the influence of our treatment so that instead of obtaining beneficial

results, dissolution takes place from unrecognized areas of disease.

How are we to overcome this? The present textbook teaching, the basis of treatment, says that operability is dependent upon a freely movable, localized growth with or without axillary glands; but, is this sufficient? No! for many a patient has been subjected to operative treatment on this basis, and in a few weeks she has returned either with a brassy cough and dyspnea or with what is called rheumatic pains in the hips. A belated x-ray examination reveals metastatic involvement of the lung and pelvic girdle, respectively. When the patient returns in two or three weeks, we may assume that the disease was not localized at the time of operation. Obviously, the patient was operable from one standpoint, but not from another.

To overcome such recurrences our standards must be revised. Operability must mean not only a localized tumor, freely movable, with or without axillary glands, but negative x-ray films of the chest, lumbar spine and pelvic girdle. Radical excision here would have an excellent chance of success, but even these precautions will not always be successful since the x-ray film will not give us much information as to infiltration and metastasis in the deeper soft parts. "An expensive procedure," you say. Yes!—but one which may save the patient needless surgery. What we very often forget is the fact that patients with carcinoma of the breast do not die of the primary growth, but they die from the secondary manifestations of the disease.

If the surgeon is guilty of this omission, the radiologist is also. Very frequently the immediate area of the disease is the only one treated, and still the patient may complain of backache or pain in the hips. Here x-ray examination often reveals lumbar or pelvic metastasis. Immediately the patient or the physician who is antagonistic to radiation draws the conclusion that radiation "spreads the disease"—a fact not substantiated by the observation of trained radiotherapists. The inference is obvious; if it is necessary for the surgeon to know the extent of the disease through complete x-ray examination, it is more so to the radiologist, for he is the "court of last appeal" in the advanced case. Of what benefit is it to treat one portion when other portions are progressive? The patient has a right to this consideration; the radiologist must do so to protect his reputation against the attack of "Another Radiation Failure."

We shall not enter into the relative merits of preoperative or postoperative radiation, but no matter how good it is, it cannot overcome incomplete surgery. Once the malignant field is deliberately or accidentally entered by incision and the disease only partially removed, radiation is fighting a losing fight, since the natural lines of defense have been broken down. Distant metastatic areas discovered shortly after operation are the fault of too hasty action and too little study, while localized recurrence in scar, flap or glands is due to incomplete surgery and inability to recognize the periphery of the growing border.

Why some advanced cases should stay well after haphazard treatment is a puzzle. Why the disease should remain stationary for months or years, and then suddenly become active is unexplainable according to our present knowledge. We are pleased to term this phase "individual resistance" or, as some men term it, "immunity." Evidently there is some metabolic factor at work which we as yet do not understand. When this is understood, then we will be able to overcome our therapeutic failures in carcinoma of the breast.

ORVILLE N. MELAND,
Los Angeles.

General Pathology and Immunology

Germicidal Action of Soap—The value of soap as a germicidal agent has again been emphasized by WALKER[1], who has extended his previous work to include the action of soaps on meningococcus, gonococcus and pathogenic microorganisms of the intestinal group. Walker found that the susceptibility of meningococcus and gonococcus are such that they are readily killed by any ordinary soap. Thus, 0.04 per cent soap solution has the same germicidal action on the meningococcus as 1 per cent phenol, while a 0.006 per cent soap solution rapidly kills gonococcus.

Walker also found that paratyphoid and dysentery bacilli are usually killed by a 0.8 per cent to 1.6 per cent solution of the soaps of the saturated acids (e. g. K palmitate), but that they are completely resistant to a 6 per cent soap solution of the unsaturated acids (e. g. K stearate, Na_1oleate). The most readily available commercial soap to be used against these microorganisms is, therefore, salt water soap prepared exclusively from cocoanut oil.

W. H. MANWARING,
Stanford University.

Proctology

Tumors of the Rectum Exclusive of Carcinoma—The most frequent tumors in the rectum are polypi and carcinomata. Both offer, as a rule, but little difficulty in diagnosis. Polypi with great frequency degenerate into carcinomata. Polypi are adenomatous in nature and are either single or multiple. In appearance they are sometimes juicy-looking, smooth nipple-like dependent processes covered by and hanging from the mucous membrane. They are found both in the rectum and colon. At other times they are papillomatous and not smooth on the surface. Such occur in adults. There is an adenomatous polyp arising from the posterior wall of the rectum, most often single and stalked, which may be extruded from the rectum in children as a raspberry-like, easily bleeding tumor. It is supposed to arise from remains of the neurenteric canal. The above are all due to a hypertrophy of the glandular tissue normally found in the mucous membrane of the large bowel. A still further type of so-called polyp, but really of fibromatous as distinct from adenomatous origin, is the one arising near the junction of the anal canal and the rectum. This may be due to a fibrosed hemorrhoid or to a hypertrophied anal papilla. Its surface is smooth and of varying size, but most often is small. All polypi may be ligatured at the base and excised

if accessible, but it is easier to fulgurate the multiple adenomatous polypi. Excision of the bowel must be considered when so many are present as to prevent local treatment, since they are definitely capable of becoming malignant.[1]

A rare tumor of the rectum is the villous growth or papilloma with many delicate fronds like that in the urinary bladder. This may likewise become malignant at the base, and excision is indicated.

In the walls of the rectum a true fibroma, myoma, or lipoma may occur. Sarcoma[2] also is found and if of a melanotic nature, is very dangerous owing to rapid blood-stream infection. It causes less pain than carcinoma and ulcerates less quickly. Radical and early excision is indicated. Hodgkin's disease has been seen in the rectum by the writer. It occurs in the lymph follicles beneath the mucous membrane.

The pararectal tumors are mainly chondroma, endometrioma, dermoid, teratoma, sacrococcygeal tumor, and chordoma. The chondroma creates a large mass in the hollow of the sacrum, and constricts the rectum; its presence may be confirmed by the roentgen rays. The endometrioma occurs in women and bleeds irregularly at the menstrual period. Removal or irradiation of the ovaries should be performed before removal of the rectum, if this latter operation appears advisable. The dermoid is a postrectal tumor arising from the sexual cells of the germinal ridge, while the teratoma presents tissues arising from full differentiation of the original impregnated cell. The dermoid is epiblastic only. But the sacrococcygeal tumor is of neurenteric origin having columnar epithelium, fat and muscle, but no bone. The chordoma is found behind or in front of the sacrum as well as at the base of the skull and behind the pharynx. It originates from nerve tissue like the suprarenal cortex and shows a similar foamy cell in its structure. For all these growths excision is indicated.

M. S. Woolf,
San Francisco.

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Ophthalmology

Telescopic Spectacles—One of the advances made in recent years in the manufacture of spectacles for individuals with very poor vision has been the telescopic spectacle by Zeiss. This is a compound lens, consisting of a convex anterior lens and a concave posterior lens, the latter also containing the patient's correction for ametropia. The effect is that of about a two-power opera glass. As the lenses are compound, they are easier to fit if the patient has only one useful eye, for the visual axes of the lenses must be very accurately adjusted to prevent diplopia where both eyes are used. Gradle and Stein[1] report sixteen cases where telescopic lenses were fitted to give better vision to patients who had poor vision due to incipient cataract, choroiditis, high myopia, and amblyopia. In all these cases the vision was doubled or better, and with the addition of an object lens slipped over the front of the distance glasses reading vision was obtained. They emphasize the necessity for perseverance and trial of the lenses, and even then many patients will not wear them. In my own limited experience I found only one out of five patients examined who would accept the telescopic lens for wear.

The patient's full correction of his ametropia is given in addition to the telescopic unit. The vision is increased two or more times, that is, a patient with a vision of 20/100 will get 20/50 or 20/40 with the telescopic unit. A patient with a vision of 20/70 or 20/100 cannot read newspaper print with ordinary glasses, but with the telescopic unit and the addition of a plus sphere of three to eight diopters over the objective he can usually read newspaper print. The field is large enough to follow the lines continuously. The distance field of vision is restricted to 24 degrees with the telescopic lens.

The conditions in which the lenses may be used are mentioned above, and include incipient cataract, corneal opacity, high myopia, retinochoroidal changes, and amblyopia. The patient must learn to judge distance with the new lens, as everything appears much closer to him. Many of the combinations must be ordered from Germany; the price of the lenses is from $50 to $75. The adjustment of the spectacles is difficult and many patients will not persevere enough to get accustomed to them.

Recently Mayer[2] reports a series of eighty-five eyes examined, in which sixty showed improvement with telescopic lenses. But he also emphasizes the difficulty of becoming accustomed to the lenses, especially where they are prescribed for both eyes.

The feature that seems to be most attractive is the possibility of giving patients reading vision with the telescopic lens who cannot read with ordinary lenses.

M. F. Weymann,
Los Angeles.

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Surgery

Hernia—The operation of hernioplasty, in spite of many improvements, is still followed by a high incidence of recurrence of the hernia. This is partly due to the practice of permitting younger members of the staff to perform the operation on ward patients, and partly to a feeling, no doubt inspired by this practice, that it is a simple procedure which anyone may perform after one or two trials. As a consequence of this very limited experience in seeing and doing hernioplasties, a standard procedure is adopted and attempts are made to apply this one procedure to all forms and degrees of hernia. Nothing could be subject to greater criticism.

The conditions essential for the cure of the inguinal hernias are:

1. A high ligation and complete extirpation of the sac.

2. The approximation of adequate tissues with-

out tension to close the defect in the abdominal wall.

3. The absence of infection.

1. *High Ligation of the Sac*—The constriction and narrowing of the indirect hernial sac at the upper end of the inguinal canal is familiar to all surgeons, and closure at the uppermost point of this narrowing where the peritoneum suddenly flares to form the larger abdominal cavity, is usually considered a sufficiently high ligation. That it does not always suffice is often apparent in a hernia of any duration, in which the neck has descended in the inguinal canal pulled down by the weight of the contents of the sac, dragging along with it a large cone-shaped pouch of peritoneum which may be the predisposing cause to recurrence if left untreated. Accordingly, it is a good rule always to carry the dissection of the sac medially, displacing the epigastric vessels, clearing away the prevesical fat and developing the sac to a point where the bladder may be identified.

In every instance, careful digital examination of Hesselbach's triangle is made from within the oblique sac to determine the presence or absence of a direct sac or pouch internal to the epigastric vessels. If this pouch is present it must be entirely freed and excised together with the oblique sac. When looked for routinely it is surprising how often it is present as a potential cause of recurrence if left untreated.

2. *The Approximation of Adequate Tissues Without Tension to Close the Defect in the Abdominal Wall*—In inguinal hernias, the defect in the abdominal wall depends in large measure upon the muscular development of the patient, upon his age, and upon the duration of the hernia. In children and young adults, the muscular and fascial development is adequate to make the simple Halsted-Ferguson-Andrews operation without transplantation of the cord the operation of choice. The defect is repaired by approximating:

1. The conjoined tendon and the edge of the internal oblique and transversalis muscle to the under surface of the inguinal (Poupart's) ligament, the cord emerging at the pubic spine.

2. The external edge of the divided external oblique to the tendinous portion of the internal oblique.

3. The internal edge of the divided external oblique to the outer surface of Poupart's ligament. All approximations are made with interrupted sutures, tied loosely so as not to crush and kill the delicate muscle cells.

In indirect hernias of long duration with obvious attenuation of the tissues comprising the conjoined edge of the conjoined tendon is sutured to Poupart's ligament underneath the cord. The external edge of the divided external oblique is sutured to the tendinous portion of the internal oblique, underneath the cord, and the internal edge of the divided external edge is sutured to the outer surface of Poupart's ligament, also underneath the cord. The cord emerges at the site of the internal ring and lies superficial to the muscles but below the deep fascia.

In many indirect hernias and in practically all direct hernias, this operation of Bassini is not available as it entails an approximation of tissues previously so widely separated that permanent healing would be the exception rather than the rule. It is a better practice, therefore, to employ in all such instances a transplantation of the sheath of the rectus. The internal edge of the divided external oblique fascia is elevated exposing the sheath over the lower portion of the rectus and pyramidalis muscles. A curved incision is made in the rectus fascia near the midline, the fascia being severed first longitudinally and then horizontally along its attachment to the pubic bone. This flap of fascia, well nourished by its continuation with the tendinous portion of the oblique muscles is turned as on a hinge so as to lie underneath the cord and is approximated to the under surface of Poupart's ligament with interrupted sutures. The external edge of the divided external oblique is sutured to the cut edge of the rectus fascia as far as possible and to the surface of the rectus and pyramidalis muscles.

The internal edge of the external oblique muscle is sutured to the outer surface of Poupart's ligament. The cord emerges from the upper angle of the wound and lies in the subcutaneous tissues. The defect has been covered by three layers of fascia, closure being obtained without tension and by the use of living, well-nourished tissue. It satisfies the conditions for ideal repair more nearly than any of the other procedures and should be more frequently and more widely employed—consistently for all direct hernias and usually for the indirect hernias of long duration with only attenuated tissues for repair.

EMILE HOLMAN,
San Francisco.

Urology

Ureteral Stricture—In view of the clinical importance of ureteral stricture and the recognizable difficulty in the diagnosis, the studies of Schreiber [1] in 100 consecutive autopsies have a great deal of interest. The work of Hunner deserves credit in focusing the attention of the profession in general and particularly of urologists to the importance of ureteral stricture, but Hunner's ideas have been regarded by the majority as somewhat extreme and his findings have not been universally confirmed. This may be due to the differences of interpretation of just what constitutes a ureteral stricture. Hunner has insisted that these strictures are localized intrinsic inflammations, the majority of which are secondary to focal infection and are bilateral in most instances. Schreiber found post-mortem incidence of ureteral stenosis in 12 per cent of his one hundred autopsies, which supports Hunner's contention of their frequency. In ten of his one hundred autopsies there was definite "hydro-uretero-nephrosis" due to ureteral stenosis which the clinical records showed to have been symptomless. But a pathological study of the obstructive causes in these cases failed to confirm Hunner's clinical studies of a localized inflammatory process, metastatic in character due to focal infection. As prime factors in the pathogenesis of ureteral obstruction, Schreiber lists the following: (1) Congenitally accentuated narrowing of a congeni-

tal physiologically narrow site. (2) Extension of inflammatory processes into the ureteral wall from adnexal disease with and without thrombophlebitis and advanced chronic cystitis. (3) The occluding kinking power of crossing anatomic structures, namely, the vas deferens in the male and uterine artery in the female. These stenosing conditions occurred in practically every instance in a ureteral zone 2 to 6 cm. from the ureterovesical orifice. These pathological findings have a great clinical significance with respect to the diagnosis of ureteral obstruction and largely nullify the value of the reputed hang of a bulb in the diagnosis of these conditions, as there are too numerous physiological sites of narrowing to produce this hang. There remains, therefore, the evidence of ureterography as of most value in the diagnosis of these obstructive conditions.

This contribution is particularly interesting in connection with one by W. J. Carson,[2] who found ureteral dilatation in thirty-one cases of 115 consecutive autopsies on females, in whom there were forty-nine hydro-ureters with hydronephrosis above in forty-six instances. Pregnancy is considered by Carson as the most frequent cause of these ureteral dilatations. Ureteral stricture of definite inflammatory origin was found, however, in four cases, of which it was bilateral in two and in one case there was a congenital ureteral stricture. These pathological studies emphasize the fact that ureteral stenosis of other origin than a localized inflammatory process is of much greater frequency than clinical studies have indicated. It has long been recognized that obstruction is the primary factor of pyelitis of pregnancy ever since 1841, when Cruvielhier published his first observation of ureteral dilatation in deaths following or during pregnancy. Kretschmer's pyelographic studies in 1925 fully emphasized the relationship of stasis to the incidence of pyelitis of pregnancy, finding bilateral dilatation in nine cases and unilateral dilatation in seven of nineteen cases studied. And in eleven cases of acute pyelitis of pregnancy there was dilatation of the ureter and kidney pelvis in every instance. These ureteral conditions are of further importance as the cause of obscure abdominal pain, it being fully recognized today that abdominal pain is never pathognomonic in itself and that any intra-abdominal lesion may produce pain simulating that considered typical of some other intra-abdominal organ. These obscure ureteral conditions are particularly important with respect to differential diagnosis from chronic appendiceal and gall-bladder conditions, and it is always a safe procedure in every obscure appendiceal or gall-bladder condition to have complete urological studies made before subjecting any case to an exploratory.

FRANK HINMAN,
San Francisco.

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Gastro-Intestinal Diseases

Cholecystography — Cholecystography has brought to the diagnosis of gall-bladder disease a degree of certainty long wished for. The accumulated statistics from widely separated clinics reveal an agreement of approximately 95 per cent between the cholecystographic and operative findings. However, this apparent accuracy brings with it a very real danger, namely, that with its more general adoption clinicians will be unduly influenced by the roentgenographic reports although the test may have been improperly carried out or the findings improperly interpreted.

It must be recalled that cholecystography is not a mystical procedure for differentiating normal from pathological gall bladders, but is merely a test of the functional activity of the entire biliary tract. Although it is true that abnormal cholecystographic findings are usually due to some disturbance in gall-bladder function, in the individual case it must not be overlooked that a decreased excretory function of the liver or a disturbance of the sphincter mechanism at the lower end of the common duct may also produce abnormal findings.

Another source of possible error lies in the tendency to accept abnormal cholecystographic findings after the oral administration of the dye as indicative of gall-bladder disease. For the present it seems advisable to recheck these apparently abnormal cases with the intravenous administration of the dye before drawing final conclusions.

There has as yet been no definite correlation between the pathological processes found in the gall bladder and the functional activity of the gall bladder as evidenced by cholecystography. In a careful study to be reported by Chandler and Newall it was found impossible to in any way prophesy the pathologic histology from the cholecystographic findings. It is possible that some pathologic gall bladders may function sufficiently well to give normal cholecystographic findings, and that some normal gall bladders may fail to visualize because of functional disturbance elsewhere in the biliary tract. Let us then utilize cholecystography to the utmost, but remember that as clinicians our responsibility does not cease upon the receipt of a laboratory report.

W. W. BOARDMAN,
San Francisco.

Bacteriology and Parasitology

Intestinal Protozoa — For many years the majority of the intestinal protozoa were considered non-pathogenic and to only one or two varieties were attached significance with regard to a probable pathogenic rôle. During and following the World War we find a renewed interest in the intestinal protozoa, due chiefly to the finding of the few parasites then considered as pathogenic quite widespread throughout the world, and the frequency of their occurrence without symptoms. However, the tendency of modern authors

is distinctly toward a pathogenic rôle for most of the protozoan parasites.

In discussing the action of the intestinal protozoa Rawson J. Pickard,[1] in a recent article, states: "Conjoint life is a test of strength between its participants. The relationship is seldom a true symbiosis, of benefit to both; practically always one party is the giver, and even when he gives from excess he must always be on guard lest his partner, flourishing, does not take from his need. . . . A change in environment changes their relative strength, so that from a benign commensalism, in which the lesser lives upon the waste of the greater, they may pass into a parasitism causing the disease or death of one of the participants. *Thus a parasite ignored in its weakness may attack from strength, or from numbers, when conditions favor it.*"

Kofoid[2] believes that our main difficulty has arisen from attempting to carry over ideas in bacteriology and applying them to the domain of parasitology, and states: "We have been highly trained in thinking from the bacterial point of view since the days of Pasteur, and poorly trained in thinking from the point of view of protozoan infection."

Quoting further from Pickard: "Yet with any parasite, however tolerant the association may appear as deduced from the crude tests we are able to apply in our laboratories, there exists a complex counterreaction between the host and the parasite, the complexity increasing with the differentiation of the organs of the associates. At one extreme the protozoan is quite definitely and evidently harming its human host; at the other extreme the protozoan is not only well enough tolerated that no signs of damage can be discerned, but on the basis of encystment, might be said to be on the defensive. . . .*The summary dismissal of species which are probably not pathogenic, as harmless, however, is not a 'scientific' attitude.* . . . Any such toxic products although not reabsorbed would be a menace, so *that the harmlessness of these organisms must be proved rather than their pathogenicity defended.* . . . It is possible that 'non-pathogenicity' of the small races as seen by Brumpt, Dobell, and other European observers is because their patients are more stoical, less apt to note or complain of the discomforts of life, more likely to accept them as the inevitable accompaniments of advancing age, than the American with whom luxuries have become a necessity, and who, somewhat softened by gynarchy, is attempting, and in this case with some success, to feel 'as young as he ever was.'" Brown[3] thinks amebae are a factor in obscure abdominal complaints associated with neurasthenic symptoms.

Hegner[4] in a recent review of the intestinal protozoa gives a pathogenic rôle to an increasing number of the ameba and to some of the flagellates,[5] ciliates and intestinal coccidia.

In a recent survey of a class of seventy medical students, I found an infestation by one or more of the various intestinal protozoan parasites in a single stool examination of approximately 50 per cent. The possibility of pathology developing under circumstances when the parasites become excessively numerous or active offers us a wide field of study. While the difficulties of arriving at conclusions in the study of the protozoan parasites is great, yet the progress that has been made by the protozoologist during the last eight years is sufficient to indicate that when our knowledge of the subject is complete, some rather revolutionary facts will be added to our present knowledge of gastro-enterology.

H. E. Butka,
Los Angeles.

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Orthopedics

Colles' Fracture—In any medical meeting there are certain subjects whose introduction is always a signal for a heated argument. Colles' fracture is one of them. The lesion is the despair of the uninitiated, and is the cause of many damage suits. In the East it is probably much more frequently seen than in California, but it is by no means rare here. After a fall of snow in the East the ordinary clinics look for a run of cases.

Colles' fracture is usually ascribed to a fall on the extended hand. If we fall forward we put both hands in front of us to catch the weight, and do not fracture either wrist. If we slip and fall, as one foot slides out in front we go down somewhat sideways, and land on the heel of the extended hand. The radius is fractured in its distal inch, and this fracture is generally accepted as a Colles' fracture. The fracture may or may not be comminuted, or impacted; silver-fork deformity and fracture of the styloid process of the ulna may or may not be present; the wrist may or may not be broadened.

The comminution or the impaction is easy to understand. The tilting backward of the distal fragment of the radius, which causes the silver-fork deformity, or the tearing off the tip of the styloid process of the ulna, or the broadening of the wrist are less obvious. Experiments on the cadaver show that extreme forced superextension of the hand can cause the characteristic silver-fork deformity, probably by tension on the anterior ligament of the wrist, but it is doubtful if this is really what takes place when we fall on the heel of our hand. The explanation is probably as follows: The distal inch of the radius, when sawn across, shows a distinct triangle, with

its base anterior. When a crushing force is applied to it on a line midway between the base and the apex, and parallel to the base, the weaker apex yields and is impacted. The broadening of the wrist is caused by the tearing loose of the radioulnar ligaments. The fracture of the tip of the ulna styloid is hard to understand. It is usually ascribed to pull through the medium of the triangular cartilage, but the anatomy teaches that the articular disc attaches to the base of the styloid process, not to its tip. The tip gives attachment to the ulnar collateral ligament, and when the radius gives way this is not put upon the stretch.

In Colles' fracture the hand is wont to be in abduction also. This is easy to understand if the radioulnar ligaments hold, but not otherwise.

Naturally when so much difference of opinion exists as to the mechanism of a fracture, ideas of its treatment also differ materially. The problem is complicated by the fact that some cases of Colles' fracture, left untreated or treated in a most slovenly manner, give excellent functional results, while others entrusted to skillful hands result in stiff and painful wrists. Hence, if after treating many cases with good results, I encounter one of this last group, I am quite likely to abandon my methods which have heretofore given me satisfaction, and adopt some radically different method. If I have been immobilizing I will mobilize early, and the reverse.

Just why is it that some cases of Colles' fracture yield a stiff wrist under any form of treatment? The most plausible explanation is that there was some pre-existing infectious disease locked up in the bone marrow, and that the intra-articular fracture set it free into the joint and thus caused an infectious arthritis. Moral: Advise your elderly patients with alveolar abscesses, when they suffer a Colles' fracture, to have their abscessed teeth extracted, and to have their stools examined for protozoa.

The methods of treatment of Colles' fracture are manifold. It would take too long to describe them, and the theories upon which they are based. One safe rule of treatment may be relied on—if there be any impaction, break it up.

It is well to insist on an anesthetic for breaking up the impaction. We may be able to do it without, but if we fail, the patient will rarely give us a second chance. If he refuse an anesthetic he should sign a written statement to that effect. This will be a good document to have in case of a damage suit. Primary anesthesia is usually enough. To break up the impaction the hand may be grasped in the handshake position and pulled forcibly with flexion and extension, or the distal fragment may be pushed forward with the thumbs. Perhaps the best way is to grasp each fragment of the radius with one hand and to move the two backward and forward until mobility is certainly felt, and the fragments can be felt to grate on each other—crepitus. Sometimes it is necessary to use the knee for a fulcrum. The main thing is to be sure that the fragments move on each other. When the impaction is overcome the silver-fork deformity disappears, and has little tendency to recur. It is useless to try to correct the abduction by adduction of the hand, for we simply obtain adduction in the wrist joint, not at the seat of fracture, but an effort may be made to push the distal fragment into place with the thumb, and to hold it there with the splint.

The succeeding treatment is largely a matter of individual preferences. Some put the hand up in flexion, some in extension. All sorts of splints have their advocates. Possibly the old method of a circular strip of adhesive plaster, with the hand in a sling might give almost as good results as any if we could be sure of protecting the hand from injury. I like a plaster of Paris gauntlet, with the fingers and thumb left free, and the hand in very slight flexion—almost an indifferent attitude. The splint may be left on for about a week, or for six or eight weeks. During this time active and passive motions may be carried on, or they may not. It makes little difference, I think. However, if the fingers and thumb have been left free, active and passive motions in them are advisable.

LEONARD W. ELY,
San Francisco.

Neuropsychiatry

Hypomanics at Large—Some time ago the Superior Court of one of the larger counties of California faced a peculiar predicament. Before it, charged with insanity, stood a man in early thirties. He smiled, enjoying the situation. He was alert, clear eyed, exceptionally quick in response and eager for action. His repartees often elicited a burst of merriment from the audience, generally at the expense of the prosecuting attorney. The witnesses alleged he had developed a-million-dollar real estate scheme with no backing; he gave five-dollar tips to porters; he danced the Charleston in public streets to the tune of an Italian hand organ; he gave, or attempted to give, a banquet to fifty prominent business men, "just to boost the town"; he undertook expensive trips "on business," but without aim; when his wife objected slightly he pushed her off the train at a little station two thousand miles from home and without funds.

"However," the young man said on the stand, "who can prove my real estate scheme would not have worked; many a porter is underpaid and deserves $5 for encouragement; a Charleston in the street is not illegal, nor specially different from one in the dance hall; it surely is no wrong to boost the town one lives in; the banquet would have been wonderfully helpful had it not been for the moss overgrown reactionaries; the trip on business is a common enough procedure; and, since the wife objected going with me any further, why not help her off the train?"

And so the men, "good and true," and the Superior Justice decided the young man might have been slightly "too energetic," but certainly was not insane. And the young man, in turn, thanked the court, touched his thumb and hand to his nose in characteristic gesture at his accusors, and went his way. In the following three months he wasted two-thirds of his property,

made a host of enemies for himself and established a reputation for irresponsibility which never can be wiped off.

And then came the change. The flush of excitement left the cheeks, the eyes lost their brilliancy, the ideation its flight and psychomotor responses their promptitude. Instead a very subdued, hesitating, pale-faced man slouched before his former associate and friend in business—the one who had tried to stop him. Standing before him, with tear-flooded eyes, he asked: "Can you ever forget and forgive? Oh, God! What had possession of me? What made me do such dreadful things? Was there no way to stop me before I ruined myself and family?" The pendulum had swung in the opposite direction—from elation to depression. The color screen of mental processes changed from brilliant, rosy hue, to bluish gray; the joyful facility of response to a burden of painful effort.

That was one of the hypomanics at large. From the barely perceptible increase of "elan vital," judged by friends an unusually good state of health, to bombastic, precipitous, reckless, and sleepless activity they range. They write wordy books, they preach new religions and politics, they sweep many unitiated into overconfident schemes, they invent new and fabulous devices to cure humanity, while "hypomania" drives, only to disappear or suicide when depression replaces elation.

Even physicians are caught now and then by the force, glamour and cheer of the hypomanic. So on he rushes, the already overactive brain further stimulated by the applause. And what he needs is rest in bed in the quietest place which can be found.

V. H. Podstata,
Livermore.

Urology

Neutral Acriflavine—The flavines, especially neutral acriflavine, are very important adjuncts to modern urological treatment. The flavines are anilin dyes and have been used in medicine for many years, but neutral acriflavine was first used by the British in the World War.[1]

At the present time it is used successfully in urology either for local application or irrigation, given by mouth or intravenously.

Locally—To be efficient in the local treatment of urological conditions a germicide must have the following characteristics:

(a) Must be non-irritant and non-toxic to the mucous membranes of the urinary tract.

(b) Must be able to penetrate into underlying tissues.

(c) Must have high germicidal powers.[3]

(d) Must not be made less active by contact with serous secretions.

Neutral acriflavine has all of these characteristics. Davis and Harrel[2] found the solution, if used in proper dilutions, to be non-toxic and only slightly irritating to the mucous membrane of the urinary tract. They also found neutral acriflavine had the power of penetrating into the submucosa of the urethra and bladder. It inhibits the growth of gonococci in protein containing media in dilution of one to fifty million, and its bactericidal action is increased by contact with serum. Hyman[4] states that in cases of acute anterior urethritis which have begun treatment with neutral acriflavine within four days after outset, a cure of 50 per cent of the cases may be expected in two weeks. It is also used as a bladder irrigation in cases of cystitis[5] and for lavage of the renal pelvis. Neutral acriflavine is used locally in dilutions of 1 : 2000 to 1 : 10,000, and should be put up in normal saline.[3] It should not be used more than once daily in the treatment of urethritis, as it may cause irritation without pain, thus tending to later stricture formation.[4]

Oral Administration of neutral acriflavine has been used in doses of ½ to 1½ gr. t. i. d. enteric coated tablets. It has been found by some observers[6,7] that the urine is rendered germicidal after the oral administration of the drug in this dosage and they recommend its use by mouth in infections of the urinary tract.

Intravenous Administration—Neutral acriflavine has been recommended for intravenous administration in infections of the urinary tract by numerous authors. It is given in an 0.5 per cent solution, 25 to 50 cc. being recommended as the dosage for an adult, and is repeated every three to six days for not more than three injections.

Summary—Neutral acriflavine is probably the best gonocide in use at the present time, and has materially shortened the duration of the average case of gonorrhea. It is also efficacious in the treatment of other infections of the urinary tract and is used for irrigations or instillations, given by mouth and by intravenous administration.

Roger W. Barnes,
Los Angeles.

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STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

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OFFICIAL NOTICES

The Walter Reed Memorial Fund—Dr. William H. Kiger, chairman of the Walter Reed Memorial Fund, reported the collection of $195.65 from California at the last Council meeting for the above fund. It is the belief of the committee appointed to collect this fund that the same would be greatly increased were it given more publicity. Moneys collected are to be used to restore the birthplace of Walter Reed in Virginia and to establish, as a memorial, a chair for research work at the University of Virginia.

President William T. McArthur in December, 1926, appointed the following as members of this committee: William H. Kiger, 523 West Sixth Street, Los Angeles (chairman); Lyell C. Kinney, 1831 Fourth Street, San Diego; Charles L. Curtiss, Redlands; F. F. Gundrum, 400 Capital National Bank Building, Sacramento; Fred R. Fairchild, Woodland Clinic, Woodland; Raymond R. McGurk, Farmers' and Merchants' Bank Building, Stockton; Henry S. Rogers, Petaluma; Rexwald Brown, 1421 State Street, Santa Barbara; John Hunt Shephard, Twohy Building, San Jose; Edward N. Ewer, 251 Moss Avenue, Oakland; T. Henshaw Kelly, 490 Post Street, San Francisco.

Any member of the California Medical Association who desires to aid this work may send his contribution to Doctor Kiger, chairman, or to any member of the committee.

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The regular meeting of the Alameda County Medical Association was held at the Ethel Moore Memorial Building at 8:15 p. m. Monday, September 19, Dr. George Rothganger in the chair. The following program was presented:

Dr. M. L. Emerson discussed the general subject of gastric ulcer, especially gastro-enterostomy for the relief thereof, pointing out the frequency with which ulcers recur about the operative opening, or contraction of the stoma interfere with its function. Under these conditions it often becomes necessary for surgeons to take down the old gastro-enterostomy or to do a new posterior operation. Doctor Emerson described a quick method of approach in the operation for relief of these troubles illustrating same with models. He brought out the point that it was often necessary because of hemorrhage to get in quickly, take care of the immediate emergency, and get out as soon as possible in order to save the patient shock and loss of blood. He illustrated the possibility of making the new opening in either direction, pointing out that the three conditions which most often called for this type of work are postoperative hemorrhage, constriction of the opening, and recurrent ulcer.

The second paper of the evening was read by Dr. W. W. Crane on "Obstruction of the Common Bile Duct" without pathologic findings. The doctor discussed in some detail the physiology of the gall bladder and made an analytical study of twenty cases on whom cholecystectomy had been performed without success. These twenty cases representing all of the unsuccessful cholecystectomies performed at the Mayo Clinic in a series of one thousand cases, symptoms persisting or recurring. Second operations showed in all, severe adhesions at old operative site. In these cases drainage of from three to six months with a Deaver T-tube gave good results in 80 per cent. Ten per cent showed no results. The author believed that the unsuccessful cholecystectomies were cases in which infection persisted in the biliary system and the prolonged drainage enabled the patient to take care of the infection. Dr. M. L. Emerson discussed the paper reporting several similar cases and emphasizing the value of the T-tube drainage saying that, in his experience, it was often necessary to drain from six to twelve months. Doctor Lawson called attention to the value of the so-called medical or internal drainage in similar cases.

The third paper of the evening was on the topic "Cancer of the Uterus" by Dr. E. N. Ewer, who reviewed the entire subject most thoroughly. He discussed recent researches in this field and reviewed the work being done in the various European cancer clinics. The doctor emphasized the necessity of early surgery, especially in the precancerous stage, and discussed the use of radium in uterine malignancy. Doctor Ewer's paper was discussed by Dr. Emil Beck of Chicago, who reviewed the action of alpha, beta, and gamma rays of radium and added his personal experiences with it in the treatment of malignancy in general.

GERTRUDE MOORE, *Secretary.*

CONTRA COSTA COUNTY

The Contra Costa Medical Society held its first fall meeting Saturday, September 24, 1927, in Richmond, California.

Doctor McCullough presided. It was purely a business meeting at which the Constitution and By-Laws of the society were discussed with a view of revising them to conform with the model Constitution and By-Laws advocated by the American Medical Association for county societies.

S. N. WEIL, *Secretary.*

RIVERSIDE COUNTY

The regular meeting of the society was held October 10 in the library rooms of the Riverside Community Hospital. A report from the committee of medical publicity showed that during the past three months they had carried a series of articles in the Riverside *Daily Press* covering such subjects as Prophylactic of Diphtheria, Appendicitis, Tonsils and Adenoids, Diet, and Infantile Paralysis. These articles set forth in brief but convincing way the subject-matter which should prove of special value to the public.

The first paper of the program was given by Dr. Joseph W. Cook of Banning, on his tour of the clinics of Switzerland, France, and England, where he investigated the treatment of tuberculosis by heliotherapy. He enthusiastically endorsed the treatment by heliotherapy.

The second paper was by Dr. A. Gottlieb, covering the subject of joint tuberculosis. He advocated

the treatment of joint tuberculosis by heliotherapy primarily.

These papers were considerably discussed.

Visiting doctors from the San Bernardino County Medical Society and the March Field staff of medical officers were present.

T. A. CARD, *Secretary.*

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SACRAMENTO COUNTY

The September meeting of the local society, held in the Empire Room of the Hotel Sacramento on the evening of the 20th, was attended by sixty-four. This included, approximately, ten health officers, who were in the city attending the meeting of the League of California Municipalities.

The minutes of the previous meeting were read and approved.

George S. Iki presented a rare and most interesting case—an osteitis of the skull following typhoid fever. Doctors Gundrum, Reardan, Haig, and Brendel expressed their interest.

Norris Jones reviewed the histories of three recent cases of anterior poliomyelitis coming under his care. This provoked a discussion of control and treatment of the disease. Soutar, Babcock, Gundrum, Thomas, Beattie, Lindsay, Cress, Kellogg of Berkeley, O'Neil of San Francisco, De Lappe of Modesto, and Haig discussed the subject.

The first reading of the applications of Louis Gouget, Raymond Primasing, and Max C. Isoard took their usual course. After the second reading of the application of Frank A. MacDonald a vote was taken which resulted in his unanimous election to the society.

The report of the board of directors told of the transfer of Leonard W. Weaver to the Alameda County Society.

The board had referred the transactions which resulted from the meeting of medical committees with New York lay organizations interested in medical subjects to our public relations committee.

Amendments to the Constitution and By-Laws, as presented by that committee, were approved by the board.

A communication was received from Clyde G. Reynolds advising us of his new location at Yreka.

The 1928 committee moved that an assessment of $10 be levied for use during the 1928 convention. The motion was carried unanimously.

There was a routine reading of the four amendments to the Constitution and By-Laws.

Charles E. Schoff, who recently returned from a several months' visit in Europe, told us of the contacts he made there.

The meeting adjourned to a light buffet supper.

BERT S. THOMAS, *Secretary.*

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SAN BERNARDINO COUNTY

Minutes of the meeting of the San Bernardino County Medical Society held at the San Bernardino County Hospital on October 4, 1927.

Meeting called to order by the president at 7:15 at which time dinner was served.

Attendance, including guests, seventy-five.

The program of the evening consisted of reading of the minutes of the previous session.

Secretary-Treasurer's report, which was accepted, and the dues for the ensuing year fixed at $15.

Doctor Meyer spoke briefly on poliomyelitis.

The president of the Board of Supervisors addressed the meeting.

The election of officers resulted as follows: Dr. G. G. Moseley, president; Dr. E. L. Tisinger, first vice-president; Dr. Fred Moore, second vice-president; Dr. E. J. Eytinge, secretary-treasurer.

Next came the address of the retiring president. Then the motion picture travelogue of eastern medical centers by Dr. Floyd Thurber of Los Angeles. Dr. George Dock of Pasadena read the final paper, entitled "Some Sudden and Dangerous Conditions."

Following his induction into the office, Doctor Moseley made a few remarks and upon the conclusion of the meeting extended the thanks of the society to Doctors Thurber and Dock.

E. J. EYTINGE, *Secretary.*

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SAN DIEGO COUNTY

The opening meeting of the County Society after its summer recess was held on the invitation of Commandant Spear at the United States Naval Hospital. An excellent chicken dinner was partaken of in the officers' mess room after which those in attendance, numbering about 150, gathered in the Red Cross auditorium where the following excellent program was given by members of the hospital staff:

Dr. Raymond Spear, chief of staff, presented about a dozen postoperative thyroidectomy cases, showing the results after several months and indicating briefly their condition before operation. Captain Spear is to be congratulated upon the judgment and surgical skill expressed in the results.

Dr. H. S. Summerlin, the hospital pathologist, commented briefly on the findings in the tissues removed.

A case of encephalitis lethargica, apparently on the upgrade although still quite lethargic, was presented and discussed by Dr. H. N. Miller.

The unusual results of a severe gunshot wound of the shoulder joint was discussed by Dr. W. S. Sargent. Apparently the main nerves of the arm were about the only tissues to escape injury, and the arm gives promise of being a useful member still.

Dr. H. A. Garrison, the urologist of the staff, talked very entertainingly on the question of strictured ureters, illustrating his remarks with some good x-ray pyelograms. He also showed a large "staghorn" kidney-stone specimen which he had removed, describing some of the difficulties encountered in its removal.

Dr. H. L. Dollard showed a patient whom he had directed through an interesting siege of pernicious anemia, and discussed the modern methods of its treatment.

The changes in the myocardium occurring in rheumatic fever were illustrated by electrocardiograms presented and discussed by Dr. R. L. Nattkemper.

An unusual, prolonged but finally well-authenticated case of typhoid fever was described and discussed by Dr. A. L. Bryan.

Doctor Gradwohl of St. Louis, an officer of the Naval Reserves, visiting this hospital, gave an interesting lantern slide demonstration of his methods of identifying and cultivating the gonococcus.

At the conclusion of this excellent and varied clinical program a lighter view was introduced in the form of the short moving-picture comedy, "You're in the Navy Now."

The regular monthly staff meetings have been resumed in Mercy Hospital, Scripps Memorial, and the San Diego General.

The San Diego Mental Hygiene Association in affiliation with the Mental Hygiene Association of Southern California featured Dr. Elizabeth Wood, psychologist to the Los Angeles public schools at its monthly dinner meeting in September.

The Medical Library Association has moved into its new quarters in the Medico-Dental Building, where on the fourteenth floor it opens upon roof promenades presenting beautiful panoramic views of the entire horizon.

Dr. Thomas O. Burger is spending a few weeks visiting eastern surgical clinics and attending the American College of Surgeons meeting.

ROBERT POLLACK.

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SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held at the Medico-Dental clubroom, corner of North Sutter Street and Miner Avenue, Thursday evening, October 6, 1927. The

president, Dr. J. W. Barnes, called the meeting to order at 8:30 p. m. Thirty-five were in attendance. Those present were Drs. E. A. Arthur, S. R. Arthur, J. W. Barnes, E. L. Blackmun, H. J. Bolinger, C. A. Broaddus, R. A. Buchanan, H. S. Chapman, Fred P. Clark, Fred J. Conzelmann, J. T. Davison, J. F. Doughty, Linwood Dozier, C. F. English, P. B. Gallegos, E. C. Griner, C. D. Hollinger, J. P. Hull, H. E. Kaplan, G. H. La Berge, R. T. McGurk, A. H. McLeish, F. G. Maggs, F. S. Marnell, B. J. Powell, Dewey R. Powell, G. H. Sanderson, J. J. Sippy, C. V. Thompson, G. J. Vischi, B. F. Walker. Dr. Boyd Krout of the local health district, Dr. R. C. Kirkwood, medical director of the San Joaquin County Tuberculosis Sanatorium, and Dr. C. E. Stabler, dentist of Stockton were visitors. Dr. Wallace Irving Terry, guest and speaker of the evening.

The minutes of the previous meeting were read and approved. Dr. H. S. Chapman, member of the board of directors, announced that the board had invited the Northern District Medical Association of California to be guest of the society Tuesday, Octover 25, 1927.

The chairman presented Doctor Terry, professor of surgery, University of California Medical School, who spoke on "Operative Pulmonary Complications."

Doctor Terry's talk was subdivided according to the following headings:

Emboli, aspiration, age, sex, anesthesia, chilling, inhibition of cough reflex, interference with respiration, previous disease of the lungs, respiratory infections not connected with the operation.

Under the heading prevention, Doctor Terry advised preoperative bacteriostasis of mouth organisms with Berwick's dye. Statistics taken during the past four years at the University of California Hospital show less than half as many pulmonary complications when Berwick's dye has been used. Table posture is important, since fewer complications occur with the Trendelenberg position. The maintenance of the cough reflex is secured by avoidance of opiates. Non-interference with excursion of diaphragm is important, as a high incidence of complications occurs after upper abdominal operation.

FRED J. CONZELMANN, *Secretary.*

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SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held at the Cottage Hospital on Monday, September 12, with President H. E. Henderson in the chair.

The meeting was well attended by members of the society and about twenty visitors interested in social service and welfare work.

The first paper was given by Dr. H. C. Schumacher of Cleveland, Ohio, on "Child Guidance Clinics." This very interesting paper was discussed by Doctors Lamb, Means, Van Paing, Sullivan, and Miss Anne McCaughey.

This was followed by Dr. Samuel Robinson, who gave a paper on "Surgery of Bronchiectasis," with lantern slides, which was discussed by Doctors Profant, Geyman, and Brown.

The society then went into executive session and Doctor Jones of Lompoc reported on conditions relative to the management of the Santa Maria County Hospital. Upon discussion it was moved by Doctor Schurmeier, seconded by Doctor Lamb, that the president appoint an investigating committee to report back to the society at the next meeting regarding aforesaid conditions. The president thereupon appointed a committee for this purpose.

There being no further business the meeting adjourned.

WILLIAM H. EATON, *Secretary.*

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The regular meeting of the Santa Barbara County Medical Society was held in the Cottage Hospital on Monday, October 10, with President H. E. Henderson in the chair.

Less than half the members of the society were present, although there were a few visitors.

The minutes of the last meeting were approved as read.

Dr. H. L. Schurmeier gave an unusual case report of dislocated cervical vertebrae. The discussion was carried on by Doctors Louman and Atsatt.

Dr. C. L. Lowman of Los Angeles gave a most interesting address on the treatment of poliomyelitis, with particular reference to the under-water exercises. Two reels of motion pictures graphically brought out the important points. Doctor Wright of Los Angeles opened the discussion. Questions were asked by various members of the society of Doctor Lowman, and Doctors Van Paing and Atsatt expressed appreciation for the excellent presentation.

A letter from the clinical and statistical section of the Los Angeles County Medical Association, inviting the members of this society to the annual Clinic Day to be held in Los Angeles on October 20, was read.

A letter from St. Francis Hospital, inviting the society to meet with their staff next month, and to hold as many of the regular meetings in their building as the society wishes, was read.

There being no further business the meeting adjourned.

WILLIAM H. EATON, *Secretary.*

❋

STANISLAUS COUNTY

On October 14, at the Hotel Hughson, the Stanislaus County Medical Society held their first fall meeting. There were twenty-six physicians present, and one of the most successful meetings of the year was the result.

Dr. Dudley Smith of the University of California talked on rectal diseases. His talk was extremely practical, and his work is recommended to all county societies in the state. Doctor Smith presents the subject as the man in general practice likes to have it. His diagnosis and treatment were particularly good.

Doctor Smith explained the diagnosis of carcinoma of the rectum and presented lantern slides for operative procedure. Doctor Coffey's operation was explained in detail. Doctor Smith has invented a clamp which simplifies the fifth and sixth stages of the Coffey operation. This modification lessens the time of operation and probably helps to prevent recurrence. Doctor Smith's explanation of his diagnostic methods was splendid. The local physicians insisted on his talking for over three hours.

Doctor Halliday, state health officer of Sacramento, gave a talk on poliomyelitis. Dean C. S. Morris of the Modesto Junior College asked for the cooperation of the physicians in college work.

J. W. MORGAN, *Secretary.*

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SAN FRANCISCO COUNTY

At the general meeting in September the program was furnished by the staff of the Mount Zion Hospital and consisted of a very interesting and comprehensive symposium on sterility in its various aspects.

Mount Zion Hospital staff has furnished a program for a general meeting during each of several years, and it is to be hoped that other hospitals may follow this lead and have their "nights" at the County Society.

The September meeting of the Eye, Ear, Nose, and Throat Section provided a very interesting discussion of retrobulbar neuritis secondary to accessory sinus disease, the consensus of opinion being that early operation, based on the diagnosis of the ophthalmologist, offers by far the most successful results.

The general meeting in October consisted of a symposium on nitrous-oxid-oxygen anesthesia in oral surgery, and it is apparent that this form of anesthesia in the hands of competent anesthetists and operators

offers many advantages over the usual ether anesthesia used in this type of work.

Meetings of the San Francisco County Medical Society are held every Tuesday evening at the home of the society, 2180 Washington Street, San Francisco, at 8:30 p. m., and it is hoped that any members of the California Medical Association who may find themselves in San Francisco on Tuesday evenings will attend these meetings, introducing themselves if they do not at once see some of their San Francisco acquaintances in the background.

T. HENSHAW KELLY, *Secretary.*

❋

VENTURA COUNTY

At our September 20 meeting held at Ventura, John Warren Bardell was accepted for transfer from Imperial County Society.

Dr. Elliot Alden, Los Angeles, gave a talk on cancer of the stomach.

At the next meeting on October 11 at Oxnard, Doctor Duffield, Councilor of the Second District, is to be present.

Doctor Bardell is located in Ventura, paying special attention to eye, ear, nose, and throat work.

C. E. SCHULTZ, *Secretary.*

CHANGES IN MEMBERSHIP

New Members—Alameda County—Donald J. Manley, Hayward.

Los Angeles County—Herbert Anderson Jr., Louis V. Bilon, Denver D. Coleman, James H. Cryst, Mary L. Gilliland, Charles Gould, Harold I. Harris, Arthur H. Hixson, Lewis I. Kaffesieder, Melville L. Loomis, Dushan V. Medigovich, John H. Regan, Stephen G. Seech, Esther Somerfield, Charles E. Thompson, Frederick M. Turnbull, Frederic Waitzfelder, James W. Young, Los Angeles; Harold E. Peterson, San Fernando; F. Kearney Sauer, Beverly Hills; Richard C. Smith, Hollywood; Conrad N. Suttner, Long Beach; Carl R. Wagner, Howard V. Halbert, Pasadena; Nelson A. Young, Huntington Park; George A. Johnstone, Glendale; Adolph W. Kosky, Santa Monica.

San Diego County—Elliott G. Colby, San Diego; Glenn T. Logsdon, Oceanside.

San Francisco County—Francis Royal Hendricks, San Francisco.

Ventura County—John W. Bardill, Ventura.

Transferred Members—Earl W. Hill, from Humboldt County to San Bernardino County.

Leonard W. Weaver, from Sacramento County to Alameda County .

DEATHS

Bagby, Henry Clay. Died at Santa Barbara, October 1, 1927, age 67 years. Graduate of Missouri Medical College, 1881. Doctor Bagby was a member of the Santa Barbara County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Boyd, Walter Mason. Died at Long Beach, October 8, 1927, age 73 years. Graduate of the Columbus Medical College, Ohio, 1883. Doctor Boyd was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Lander, Charles John. Died at San Francisco, October 4, 1927, age 51 years. Graduate of the College of Physicians and Surgeons, San Francisco, California, 1910. Doctor Lander was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Seward, Lee Sanford. Died at Ahwahnee, October 17, 1927, age 38 years. Graduate of the Hahnemann Medical College of the Pacific, California, 1913. Doctor Seward was a member of the Merced County Medical Society, the California Medical Association, and the American Medical Association.

UTAH STATE MEDICAL ASSOCIATION

W. R. CALDERWOOD, Salt Lake.....President
E. H. SMITH, Ogden.....President-Elect
FRANK B. STEELE, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....
.....Associate Editor for Utah

COMPONENT COUNTY SOCIETIES

SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held in the Assembly Room of the Medical Arts Building, Salt Lake City, Monday, September 26, 1927.

Meeting was called to order at 8:15 p. m. by President W. G. Schulte. Eighty-two members and seven visitors were present.

Minutes of the previous meeting were read and accepted without correction.

The society was honored by the presence of Howard Fleming and Alson Kilgore, both of San Francisco. Doctor Fleming read an extremely interesting paper on "The Diagnosis of Neurosurgical Lesions." He limited his subject to tumors of the brain and spinal cord and illustrated his points with lantern slides. He discussed the latest diagnostic procedures and the differential diagnosis of the various lesions.

This paper was discussed by Garland H. Pace and J. R. Llewellyn.

Doctor Kilgore's subject was "Operative Room Pathology of the Breast." He discussed the normal breast, inflammatory conditions, malignancy, simple and papillomatous cysts. His classification was very clear and the differential diagnosis without microscopic examination was very well brought out. He illustrated his lecture by lantern slides.

This paper was discussed by R. S. Allison, E. F. Root, Clarence Snow, and John Z. Brown.

A communication from the U. S. F. and G. was read. It was moved by Clarence Snow that it be acted upon at the next meeting. Seconded and carried.

Albert Leigh and G. Coray were elected to membership.

Application for membership signed by David B. Gottfredson was read and turned over to the board of censors.

Amendment to the By-Laws providing for an increase of the dues from $10 to $15 was read and voted upon. The amendment was lost by a vote of 45 to 23.

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The regular meeting of the Salt Lake County Medical Society was held at the Medical Arts Building, Salt Lake City, Monday, October 10, 1927.

Meeting called to order by President W. G. Schulte at 8:10 p. m. Sixty members and four visitors were present.

Minutes of the previous meeting were read and accepted without correction.

A. J. Hosmer presented a patient who injured his index finger, right hand, August 3, followed by an infection which necessitated amputation of the finger. A skin graft from the abdominal wall was made with good results.

E. N. Roberts of Pocatello, Idaho, read a paper on "Surgical Errors." He cited many case histories illustrating the various errors of technique, judgment, and diagnosis.

"The Development and Surgical Significance of the Orbicularis Oris Muscle" was the title of the paper read by T. F. Mullen of Pocatello, Idaho. He dis-

cussed the origin and the embryological development, illustrating his paper by lantern slides.

This very interesting paper was discussed by B. I. Burns, Department of Anatomy, University of Utah.

A letter from the U. S. F. and G. was read. T. C. Gibson moved that a committee of three be appointed to investigate the insurance contract and report to the society. Seconded and carried.

The Chair appointed T. C. Gibson (chairman), E. D. LeCompte, and R. R. Hampton as members of the committee.

Application signed by Orin A. Ogilvie was read.

David B. Gottfredson was elected to membership. Adjournment at 9:40 p. m.

M. M. CRITCHLOW, *Secretary.*

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UTAH COUNTY

At the first meeting of the winter season, held the night of September 14, Dr. H. G. Merrill was the principal speaker. The doctor discussed his experiences as a delegate to the Rotary International Convention held at Ostend, Belgium, the past summer. He also gave some sidelights on the medical centers of Europe, a number of which he visited during his time abroad. Dr. F. D. Worlton of Lehi, Utah, also spoke on his trip to Europe which he had recently made as a member of the Interstate Tours party. The remarks of both members were of decided interest. Business meeting followed the addresses.

September 28, Dr. T. W. Hasler gave a résumé of his trip to Denver at the time of the E. E. N. and T. meeting in that city. The doctor spoke in more extended fashion upon matters relating to his specialty. His remarks were generally enjoyed.

October 12, Dr. B. E. Bonar of Salt Lake gave the principal paper, his subject being "Diagnosis and Treatment of Pneumonia in Children." The doctor gave a complete résumé of symptomatology and a comprehensive outline of the technique of handling children during the course of this disease. His paper was of timely and scientific interest and was much enjoyed.

ARNOLD E. ROBISON, *Secretary.*

Medical Charity in the Philippine Islands—The Committee on Free Public Dispensaries of the Philippine Island Medical Society brought in the following recommendations:

1. That the people of the Philippine Islands be classified yearly into nonindigent and indigent poor.

2. That promulgation of ordinances in all municipalities, resolutions by provincial boards, circulars or orders by department secretaries concerned enforcing the indigence system in the Philippines be recommended.

3. That indigence cards be issued to all indigent persons by the municipal secretaries or their representatives.

4. That all persons to whom these cards are issued be admitted or treated in all Government dispensaries and hospitals free of charge.

5. That penalties for the misuse or falsification of indigence cards be recommended.

6. That the limit of income for indigent persons be P 100.00 per month for single persons, or for married persons after deductions for their children as per income tax ruling have been made.

7. That the provisions of the Administrative Code, Sections 869, 1006 (i), 1031 and 1032 (Act No. 2711), which entitle all Government employees, irrespective of their salaries, to free medical service, be repealed.

8. That a permanent committee to continue this work on public dispensaries and to recommend further necessary legislation be appointed.—*J. of the Philippine Islands Med. Assoc.*

NEVADA STATE MEDICAL ASSOCIATION

WILLIAM L. SAMUELS.....President
R. R. CRAIG.....First Vice-President
WILLIAM H. RILEY.....Second Vice-President
HORACE J. BROWN.....Secretary-Treasurer
W. A. SHAW, D. A. TURNER, S. K. MORRISON.....Trustees

Submitted for the Committee on Necrology for the twenty-fourth annual meeting of the Nevada State Medical Association, Reno, Nevada, September 23 and 24, 1927.

OBITUARY

SIMEON LEMUEL LEE

The subject of this obituary, Simeon Lemuel Lee, M. D., was born near Shobonier, Fayette County, Illinois, on September 4, 1844, and died at Carson City, Nevada, January 12, 1927.

Doctor Lee was one of the most distinctive characters of Nevada. No Nevadan was ever better known throughout this vast section of the West.

The place of Doctor Lee's birth in southeastern Illinois is Illinois' historic spot. His great-grandfather, William Lee, with his family, moved into that section in 1815, and in 1849 was lured across the western plains en route to the California gold-fields, but died of cholera near the present city of Cheyenne, Wyoming.

Doctor Lee's ancestors came directly from good-blooded English stock. The ancestral tree dates from the name of Sir Walter Lee of Cheshire, Parish of Widenbury, England, in "36 year of King Edward ye 3."

The King Edward referred to was born in 1312 and died in 1377 after a reign of fifty-one years. As a point of medical interest it was under the reign of this King in 1349 that the black death, as it was then called, now known as the bubonic plague, swept away one-third of the total population of England and completely revolutionized the social and political character of the country. There is a monument to this plague just outside the tower gate of Winchester which the writer frequently visited and which was seen by thousands of American soldiers in the World War.

The Lee family emigrated to America, some settling in Ipswich, Connecticut, in 1632, and other members coming later and settling on the James River, Virginia, in 1641.

Doctor Lee's early education was obtained in the public schools at Vandalia, Illinois, then a flourish-

ing pioneer town, and a former capital. The opportunity for education was above the average in Vandalia even in those early days, by reason of the fact that the old capital town still contained some eminently respectable and well-educated people.

Doctor Lee's early life was spent on his father's farm, his father being a landowner and a prosperous farmer.

When Doctor Lee had just passed his nineteenth year he enlisted in the Union Army and was sent to join the Federal forces at Vicksburg. He enlisted in the Eighth Illinois Volunteer Infantry and was under the command of General Grant, who a few months prior had captured that city from the Confederate General, Pemberton. Remaining at Vicksburg a short while, he went through Mississippi under General Sherman. Then he was ordered to Du Vall's Bluff, Arkansas, under General Canby. In September, 1864, he was made a sergeant. Then he was sent to New Orleans, and from there to Mobile. It was at the outpost near Mobile, the last defense of that well-fortified city, where he was promoted to a first sergeant, and shortly afterward was made a second lieutenant. At the fierce fight at Blakely, his company consisting of thirty-five men, one-half of his men were killed or wounded. From Mobile he was ordered to Shreveport, Louisiana, thence to Marshall, Texas, and finally again to New Orleans, where he was mustered out in June, 1866.

The fighting seen by Doctor Lee was arduous and bloody, where casualties were always one-third of those engaged, and Croix de Guerre decorations were never dreamed of.

Following his muster out from the army, the following September he entered the Physico-Medical Institute at Cincinnati and graduated from that institution with the degree of M. D. in February, 1870. He returned to Illinois and made his maiden effort in practice at Louisville, Clay County, remaining there till October of 1870, when he took the westward trek coming to Carson City, Nevada, late in the same month and established a practice in the capital of the state.

After being in Carson City for two years, the lure of the big mining camp at Pioche, in the east side of the state, attracted him to that town. This was in 1872. At that time Pioche was a town of six thousand people, and through the Meadow Valley Mining Company and the Raymond and Ely Mining Company had already produced over $16,000,000 in silver alone. Pioche gave great promise of a second Comstock Lode, but the boom died, and after a residence of five years Doctor Lee left Pioche and took up his residence at Eureka, Nevada, at that time the dominating lead market of the whole world.

As a general practitioner—for he did surgery as well as internal medicine and obstetrics—Doctor Lee was a man of good judgment and ability. I doubt if any of the early pioneer physicians had a larger or more successful practice than he. Among the incidents of his professional life that mark the man as a true devotee of medicine were two that are worthy of note. The first is of a trip taken by him to the opposite side of Lake Tahoe to attend a woman in labor in the depths of winter. I am informed that Truckee was called for medical help, but refused to go. Doctor Lee volunteered. He was driven by team as far up in the Sierras as it was possible to go, then he put on snow-shoes for the first time in his life. The driver who brought him up to the farthest point where a horse could travel, entreated the doctor not to continue as the canyons were deep with snow and all traces of a road were obliterated. Nothing daunted, Doctor Lee went. He plodded his weary and dangerous way hour after hour, frequently sinking deep into the treacherous snow depths, but finally came out to Lake Tahoe. He had to cross Lake Tahoe. Captain Pomin, now deceased but well known to thousands of the Lake tourists, refused to take Doctor Lee across, pointing out the extreme danger of the undertaking. But Doctor Lee showed him a written order he had secured long before whereby, in case of emergency, Doctor Lee was to have possession of the boat. This settled the point and the two men made the dangerous trip across the lake safely. The accouchement was safely done and mother and child saved.

The other incident was somewhat similar and equally dangerous. In this instance Doctor Lee braved the perils of the deep mountain snows and went to the aid of a woman dying of pneumonia, but too late to save her. When it is remembered that the mountain passes were nearly 7000 feet above sea level, and all the canyons were filled with snow scores of feet deep, that the trail led alongside of places where one misstep meant sure death in the deep canyons below, those who read of these heroic acts of courage and supreme devotion to duty done in the interest of suffering humanity, must feel they are equally as heroic as any done upon the field of battle. I am sure that every physician feels that his professional duty is as direct as was that of those who made the great charge at Balaklava, "Theirs not to reason why, Theirs but to do and die."

Doctor Lee was an energetic man in social and political affairs. As a Master Mason, he was prominently identified with Masonry in Nevada and California. He was a member of the De Witt Clinton Commandery of Reno and a member of the Islam Shrine Temple of San Francisco.

Professionally, in a public capacity, Doctor Lee was member and secretary of the Nevada State Board of Health and State Board of Medical Examiners from the inception of the same in 1911 up till his death. He was also appointed to the honorary post of Surgeon-General of the state during the administration of Governor Oddie.

Doctor Lee's great hobby was gathering rare collections. These collections included one of the very finest assortment of Indian basketry and Indian arrows and flints to be found in the United States.

His collections also included a fine assortment of rare ceramics, stamps, money, and a complete collection of geologic and semiprecious stones from Nevada and the surrounding states.

It has been said that the original cost to Doctor Lee for these rare collections was over $50,000. As a citizen of Nevada, I strongly endorse that the state purchase this rare collection and keep it in the new State Building as a perpetual source of education to all interested in this feature of study.

During the World War, Doctor Lee was chairman of the Ormsby County Committee to raise funds for the liberty loans. He had often remarked to the writer that the county which, figuratively speaking, could have been covered with a blanket, and which did not contain more than 2000 people, under his energetic endeavor, raised over three-quarters of a million dollars to carry on the war.

Doctor Lee was married to Miss Lola Montez Watts at Flora, Illinois, November 26, 1868. To this union three sons were born, all of whom died in early adult manhood. One son, Adelbert Watts Lee, M. D., was a graduate of the Medical Department of the University of California. At the time of his death, on October 17, 1921, of appendicitis, he was occupying the chair of Dermatology in his Alma Mater.

On Wednesday, January 12 of this year, the last leaf of the ledger of Doctor Lee's life was turned. His death caused a great sorrow among his thousands of close friends. He closed a long active medical career of fifty-six years, all with the exception of a few months in the state of his adoption. On the following Sunday a body of his old friends followed his remains to the little cemetery, and as the volley-firing ceased, the silvery bugle pealed out the farewell notes for the soldier-physician. The flower-laden casket passed from view, and while Mother Earth claimed her own, the spirit immortal had passed on before to join those of his family who we all feel have joined that celestial life in which sorrow and parting are no more.

THOMAS W. BATH, M. D.

MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; History of Medicine; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

CURRENT COMMENT

THE POORE'S PLAGUE AND MR. PEPYS *

Being excerpts from an article by G. R. Owen, M. D., Los Angeles, in Annals of Medical History, Vol. III, No. 3.

". . . At the beginning of London's great plague of 1665, Samuel Pepys was thirty-three years of age. With four exceptions bubonic plague had been known in London every year since 1603. The 'Long Visitation' of 1640-47 occurred during his adolescence, that period of interrogation, when doubtless, in answer to his countless questions, he was regaled by the oldsters of his family with gruesome tales of the very considerable epidemic of 1625. He, having been about eighteen at the end of the 'Long Visitation' and of an extremely acquisitive and curious turn of mind, had in all probability made some personal contacts with the sick and recovered. . . .

* * *

"'. . . I was much troubled today to see a dead man floating upon the waters, and had done (they say) these four days, and nobody takes him up to bury him, which is very barbarous' (April 6, 1662). 'This entry is a pregnant introduction to a consideration of the sanitary conscience of the ancient city. . . .'

". . . Householders were responsible for the sweeping of the public streets to the extent of their own frontage, the piles of refuse thus accumulated to be taken up by the 'rakers' and deposited on the various and putrid laystalls, huge piles of rotting refuse. Long Ditch, the Fleet, and the numerous streams draining the city and town were but open sewers over which 'houses-of-office' were erected, and into which honest citizens leaning from their projecting casements naively deposited the contents of their chamberpots. . . .

* * *

" . . . From November 26, 1663, to August 4, 1664, we find frequent references in the Diary to the plague among the Dutch: 'The plague, it seems, grows more and more at Amsterdam: and we are going upon making of all ships coming from there or any other infected places to perform their quarantine (for thirty days), a thing never done by us before.' (November 26, 1663). . . .

". . . Our chronicler's first reference to the actual epidemic appears on May 24, 1665, and indicates the inevitable reactions to a calamity of this type. . . .

"'. . . Thence to the coffee-house (that sixteenth century prototype of the hot-stove league), and heard of the plague growing upon us in this town; and of the remedies against it, some saying one thing, some another. . . .'

" . . . On the twenty-eighth of August, Pepys, depressed by the silent streets occupied by only the pathetic few 'looking like people that had taken leave of the world,' decided to close his house and join his wife at Woolwich, his offices having been previously removed to Deptford. 'Thus I think to take leave of the London streets' (August 28, 1665). 'Up, and after putting several things in order to my removal to Woolwich, the plague having a great increase this week . . . the plague above 6000. Thus this month ends with great sadness upon the publick . . . every day sadder and sadder' . . . (August 31, 1665).

". . . Corpses lay piled in the fields like faggots until such time as they could be thrown indiscriminately, hurriedly and uncoffined into the common graves, as disclosed by recent excavations of old pits. In 'God's Terrible Voice in the City,' Vincent says: 'Multitudes! Multitudes! in the valley of the shadow of death, thronging daily into eternity. The churchyeards are now stuffed so full with dead corpses that they are in many places swelled two and three feet higher than they were before, and new ground is broken up to bury the dead. . . .'

* * *

"'. . . I have stayed in the city until above 7400 died in one week, and of them above six thousand of the plague, and little noise, heard day or night but tolling of bells; till I could walk Lumber Street and not meet twenty persons from one end to another, and not above fifty upon the Exchange; till whole families, ten or twelve together, have been swept away; till my very physician, Dr. Burnett, who undertook to secure me against the infection, having survived the month of his own house being shut up, died himself of the plague; till the nights though much lengthened, are grown too short to conceal the burials of those that died the day before, people being thereby constrained to borrow daylight for that service; lastly till I could find neither meat nor drink safe, the butcheries being everywhere visited, my brewer's house shut up, and my baker with his whole family dead of the plague. Yet, Madam, through God's blessing, your poor servant is in a perfect state of health.'

* * *

"On the seventh, he 'sent for the Weekely bill . . . 6978 of the plague.' One thousand a day! In desperation fires were ordered burned in the streets, one at every twelfth house: 'Thence by water . . . all the way fires on each side of the Thames.' In the week that the fires burned came the first decrease since the inception of the illness four months previously—aeons ago to the unhappy people: 'the decrease of 500 and more, which is the first decrease we have yet had in the sickness since it begun. . . .'

" . . . Thus ends the depressing chronicles of that drear and drab September. Twenty-six thousand, six hundred and fifty-two victims of the pestilence. Victims duly registered by overworked clerks and sextons. Heaven only knows how many went unnoticed to the pits. With the turning leaves of October's cool autumn days came a steady decrease in mortality. Infections were many, but the virulence was attenuated. . . .

* * *

". . . Stimulated by the returning clatter of the filling town he does 'resolve to remove home soon, as we know how the plague goes this week.' The month closed 'with but 333 of the plague' (November 30, 1665). . . .

". . . From thence on occurred an occasional flurry in the weekly bill, with expressed apprehension that there might occur the dreaded hot-weather increase. Not so, however, for which our diarist piously thanks God. Two hundred and twenty-two of plague in February, and 107 in March. . . .

* * *

". . . Though plague deaths occurred for some weeks after November 20, 1666, that day marks the official ending of the Great Plague and our story thereof.

"'And then to church, it being thanksgiving-day for the cessation of the plague, but Lord! how the

* Editor's Note: These quotations are printed in this "Current Comment" column of California and Western Medicine because the reviews of the bubonic plague in America and California, in the twentieth century, on other pages of this issue, make these sidelights on the plague in England in the seventeenth century, almost four hundred years ago, of interest.

towns do say that it is hastened before the plague is quite over, there dying some people still, but only to get ground for plays to be publickly acted, which the Bishops would not suffer till the plague was over.'

* * *

"Two centuries passed before the Victorian era, when the radiance of the immortal Pasteur dispelled the Egyptian darkness of the centuries. Until then the civilized world knew little more of epidemiology than did Pepys and his world. . . .

* * *

". . . We have already shown that they recognized the danger of public gatherings; the necessity of fuming infected houses, and the burning of infected bedding. They had a fair conception of quarantine, and vague ideas upon the danger of 'vermin,' the accumulation of filth and climatic influences. So had they a knowledge of all these things at the time of 'the plague of Thucydides,' some 400 years B. C. Even the building of fires in the streets was practiced in Athens during that epidemic. . . .

* * *

". . . Not until 1894 did Kitasato discover the Bacillus pestis, and several more years were to pass before the rat and its parasitic flea were to be indicted and convicted. . . ."

THE 1924 LOS ANGELES PLAGUE EPIDEMIC

The following comments in relation to the bubonic and pneumonic plague, outbreak in Los Angeles of October, 1924, were originallv written with the intention of printing them under the "Medical Economics" column of this journal, but their length and nature led to the decision to give them a different title and print them in the "Current Comments" column of CALIFORNIA AND WESTERN MEDICINE.

The subject discussed made it desirable for a number of reasons that California physicians should be informed in the pages of the official journal of the California Medical Association, concerning the nature and scope of the Los Angeles epidemic of 1924. Up to this time the only official information thereon is that which appeared in the annual report of the California State Board of Health, to which only a very few members of the medical profession have easy access.

* * *

Medical Economics has especially to do with the economics of physicians in relation to the practice of their profession, and to their business relationships with patients.

It may also indirectly have to do with the economics of lay citizens and of communities, in relation to the acceptance by the lay public, of health measures which if or if not put into operation in our age of population growth and of intensive material civilization, may mean a gain or loss to the citizens of a metropolitan city, of sums running into hundreds of thousands of dollars.

* * *

We have seen no figures of the indirect money loss to the city of San Francisco at the time of its plague outbreak some twenty-five years ago, to which reference is made elsewhere in this issue of CALIFORNIA AND WESTERN MEDICINE, but the loss to the business interests of that city at that time must have run into the millions of dollars.

The citizens of San Francisco raised among themselves a fund running into thousands of dollars to supplement the activities of federal, state and local health authorities, and it was money from these private sources that made possible investigations among ground squirrels outside of San Francisco City and County, by means of which the ground squirrel population of adjacent counties was shown to be infected by the Bacillus pestis.

* * *

In the October, 1924, plague epidemic in Los Angeles, for plague eradication work, the city spent $275,000, the county $95,000, the state $10,000 or a total of $380,000. In addition the citizens of Los Angeles spent $2,000,000 in complying with emergency rat-proofing ordinances. These figures are from the report of the California State Board of Health. The United States Public Health Service also has spent very considerable sums in the work.

An estimate of fifteen millions of dollars was placed on the money loss to Los Angeles citizens, resulting from that brief plague outbreak in southern California.

* * *

For more than a year now, a special committee of the Los Angeles County Medical Association has been at work seeking to secure the passage of a rat-proofing building ordinance. Its efforts, as well as those of civic bodies, have at the time this is written not gotten the proposed ordinance out of committee of the Los Angeles City Council.

The proposed statute is a non-retroactive building ordinance, the two major demands of which are: (1) that every new building shall have a rat-proof foundation at least 18 inches beneath the ground (rats do not burrow deeper than that for shelter or food); and (2) that all buildings in which foods are stored (food depots) shall have a cement rat-proof floor on the first floor.

At the time of this writing, Los Angeles is without any rat-proofing building ordinance, the emergency rat-proofing ordinances which were gladly passed when the scare was on having been repealed by the former Council, upon the advice of the building commission, the health commission of the city not having been consulted in the matter!

Of course if a recurrence of the plague took place today the emergency rat-proofing ordinances would again be immediately voted through. In the absence of an immediate menace, however, it is easy to procrastinate and argue, both as to the efficacy and the necessity of the measures proposed. That is human nature. But human nature and its frailties do not absolve the medical profession from doing its part, and it owes it to itself to go on record in pointing out to the people and their legislators what presumably should be done, in view of the facts and issues which are at stake.

* * *

With the hoof and mouth disease, and also with the bubonic plague, California agreed that it was desirable not to overemphasize publicity at the time of the epidemic. However, since the last human case in southern California was at Los Angeles and of date of January 11, 1925, practically three years ago, it is surely admissible in the official medical journal of the state to quote from the twenty-ninth annual report of the California State Board of Health of date of June 30, 1926. The licensed physicians of California have a right to know what took place in 1924, for their effective cooperation in this and other dangerous epidemics in the future must of necessity rest on facts rather than on speculation.

* * *

We shall therefore quote briefly concerning the cases, as taken from the state board report:

". . . On October 19, 1924, Lucena Samarano, a Mexican woman living at 742 Clara Street, Los Angeles, California, died after an illness of four days. An autopsy was not held, as no unusual interest was attached to the death. This woman lived with her husband and family at the above address, where she maintained a rooming and boarding-house.

"On October 22, 1924, this woman's husband, Guadalupe Samarano, and Jessie Flores, a practical nurse who nursed Lucena Samarano, were taken ill, the latter dying at her home, 741 Clara Street, the former dying in the Los Angeles General Hospital. An autopsy was held on Guadalupe Samarano, and the cause of death was given as double lobar pneumonia.

"Up to October 24 there was no reason to suspect pneumonic plague. A few days following the death of the husband and nurse, the Los Angeles City Health Department and the Los Angeles General Hospital received a call, stating that a number of Mexicans in the Mexican quarter—the Macy Street district in Los Angeles, and the Belvedere district in county territory—were desperately ill. The physician who sent in the call stated that these patients were critically ill of some malady which he could not definitely diagnose, but which he thought might be highly contagious, since several others in the neigh-

borhood were similarly affected, namely, with high fever, pain in the back and chest, and expectorating a profuse bloody sputum.

"The resident physician of the Los Angeles General Hospital answered the call in the Belvedere district. Here he found an old Mexican woman crying between paroxysms of coughing, and a Mexican man restless and feverish. Through the aid of an interpreter, it was learned that these patients were stricken the day previous with a severe pain in the front of the chest and along the entire spine, a few reddish spots on the chest, and with a temperature of 104.

"The interpreter led the physician to a nearby home, where a young man and his wife and a young girl were found suffering with symptoms similar to those of the other cases. (Three days later the man was dead and the two women dying in the Los Angeles General Hospital.) The interpreter remarked that four other boys, relatives of these patients, were also ill at their home, and that the father (Guadalupe Samarano) of the young men above referred to had died in the hospital the week previous of what was thought to be pneumonia.

"The medical inspector of the Los Angeles City Health Department found similar conditions to exist in the homes visited by him in the Macy Street district. All of these patients were hospitalized. By October 28, 1924, eighteen patients, friends and relatives of Lucena Samarano, were admitted to the hospital. They all developed signs of severe pneumonia, with profuse blood expectoration and marked cyanosis, all dying after an illness averaging four days.

"On October 31, 1924, an autopsy was held on Horace Guiterrez, one of the above patients. Smears from the lungs of this patient showed gram negative bipolar staining bacilli, characteristic of plague. Sections of the lungs confirmed the diagnosis of pneumonic plague. The diagnosis of pneumonic plague having been established in this case, sections were then made from the lungs of Guadalupe Samarano, in which plague was proven.

"On October 31, the day plague was diagnosed, Mary Costello, the nurse who cared for Guadalupe Samarano, the priest who administered the last rites, and the ambulance attendant who moved him to the hospital, all contracted the disease. The former recovered and the latter two died.

"In all, there were thirty-two cases of pneumonic plague in this epidemic, of which thirty terminated fatally. There were ten persons living at the Samarano home at 742 Clara Street. Sixteen relatives and friends who visited the home during the illness of the first patient also developed pneumonic plague. Other contacts to develop the disease were the nurse, a Spanish priest, and the ambulance attendant. One case was not definitely traced. This patient was in articulo mortis at the time of admission to the hospital, and his friends could throw no light upon his whereabouts before being taken ill. . . .

". . . So far as we have been able to ascertain, pneumonic epidemics have arisen as the result of earlier bubonic infections. . . .

". . . In all, there were seven cases of bubonic plague in Los Angeles between October 24, 1924, and January 11, 1925. The symptoms were not to be distinguished from other cases of bubonic plague, but there are certain facts of particular interest. . . .

". . . Early in the investigation it was learned from reliable sources that an epizootic of some nature had occurred among the rats in the district where plague first made its appearance. As evidence that such an epizootic did occur, it may be mentioned again that the first rat to be proven plague-infected was found in a dying condition in a grocery store one block from where the first human case occurred. Also that the address where two cases of bubonic plague occurred is only a few blocks separated from the first focus of human and rodent plague, and dead rats were found beneath the floor of the home where the Anderson Street cases occurred. . . .

". . . The study of our investigation leads us to the conclusion that the pneumonic epidemic was preceded by an epizootic among the rats some few weeks before the epidemic; that the first case of human plague to occur in the district was of bubonic type; that the pneumonic and the scattered bubonic cases were all of rat origin. We are reminded 'that rat fleas may be attracted to man, jump on him, but take some time to feed on him. This last observation is of importance in connection with the question of importation of infected fleas from place to place.' We are also of the opinion that in Los Angeles City and County the rat epizootic preceded and was accountable for the plague infection among the ground squirrels. . . .

". . . On November 3, 1924, a meeting was held at the office of the mayor of Los Angeles. This meeting was attended by representatives of the federal, state and local health departments and business men of the community. All plague control work was placed under the direction of the secretary of the California State Board of Health.

"The following plan of operations was agreed upon and placed in operation:

"1. Strict quarantine of all areas where plague cases had occurred or might occur.

"2. Segregation of the inhabitants of these districts and prevention of the gathering of groups of people.

"3. A daily house-to-house inspection within the quarantined areas.

"4. Hospitalization of all known contacts with pneumonic cases and hospitalization of all cases of illness found within the quarantined areas.

"5. The examination of all dead bodies by physicians, and autopsies by the pathologist at the Los Angeles General Hospital, on all cases dying of unknown causes or in which a diagnosis had not been definitely established.

"6. The establishment of a bacteriological laboratory for exclusive examination for rodent and human plague.

"7. A special force of men for widespread trapping, poisoning, and rat-proofing of buildings.

"8. The disinfection of premises by petroleum spray.

"9. The tagging of all rats, mice, and squirrels collected, so the locations of any infected rodent would be known and the progress of infection mapped out; and the tagging and special marking of all rodents from the harbor district.

"10. The proper disposal of garbage and the separation of the rat from his food supply.

"11. Eradication of ground squirrels under the direction of the county horticultural commissioner, who had an efficient and well-organized department of rodent control. . . ."

More might be quoted, and an interesting story of the initial diagnosis made could be presented, but of that, perhaps, in a subsequent issue.

* * *

Much of the discussion in Los Angeles has seemingly hinged on the efficacy of rat-proofing the buildings versus catching the rats, and as to which of the two methods was the more logical and important measure in bubonic plague prevention.

On that account a letter from the chief of the United States Bureau of Biological Survey may be of value at this time; and also be worthy of printed record for service in the future. It may be added that the bulletins referred to in this letter favor rat-proofing measures as of paramount importance.

The letter referred to is as follows:

September 28, 1927.

Dear Doctor Kress:

Your letter of September 13 is received. The further information concerning rat-proofing, referred to in our Farmers' Bulletin No. 1533, is supplied through reprints numbered 620 and 655 of the Public Health Reports, copies of which you undoubtedly have.

This indicates that we are in full accord with the substance of the rat-proofing program advocated in the reports and also with your tentative draft of a rat-proof building ordinance for Los Angeles, inasmuch as it is apparently closely patterned after the model ordinance contained in reprint No. 620. It appears, however, that your section number 7 fails to take care of a common situation favorable to rat infestation in that it allows the construction of a ground floor in Class 2 buildings at any convenient distance from the ground level. This often provides, particularly in warmer climates, an enclosed space, too shallow to be accessible and an ideal harbor and breeding place for rats. It is true, of course, that rats are supposedly shut off from such space by the provisions of the ordinance, but the number of cases in which they do succeed in reaching such places is remarkable. Once having gained access to a dead space of this kind they are exceedingly difficult to control.

From a purely rat-riddance viewpoint, Class 2 buildings would be more effectively rat proof if they should be required to either meet the provisions of Class 1 buildings and have a full basement or be set upon pillars as your ordinance provides. If this would be considered too drastic, the ordinance, in our opinion, would be strengthened by providing that in no case should a wooden floor be constructed less than 18 inches from the ground level, and that means of access to the intervening space be provided. This might seem a minor point, but our experience has indicated that rats are far less likely to establish permanent residence in a space of proportions capable of admitting its natural enemies, and that also rats are much more easily controlled in available situations.

It also occurs to us that your Section 8, providing for closure of wall spaces, might better require that they be closed with cement mortar or other "non-combustible materials impervious to rats." It would also seem desirable that it be made plain that the ordinance apply to buildings to be constructed or altered after the passage of the ordinance.

We have found that a heavy infestation of rats often occurs in buildings which apparently meet all of the requirements of your tentative ordinance, but which provide ample rat shelter on the inside in the form of built-in fixtures, such as platforms, shelves, furnaces, machinery, etc. While your Section 8 might cover miscellaneous details of these kinds, it would seem desirable to definitely provide that such built-in fixtures be approved as rat-proof by the building commission.

It might also be advisable, from the standpoint of overcoming opposition to the ordinance, to provide for some exceptions such as in the case of portable and temporary buildings, open lumber and machinery sheds with dirt floors, and other buildings not offering serious menace to the rat situation.

In considering the rat control problem in cities in a general way, it has been our observation that any methods which do not strike at the sources of the trouble should be discarded at the outset. The actual destruction of rats by poisoning or other means would require large and continuous expenditure and would result in no permanent benefit. On the other hand, any measure which tends to permanently reduce the food supply and harbors of the rat automatically cuts the rat population in pro-

portion to the thoroughness with which such measure is carried out.

We also feel that inasmuch as most modern buildings now conform to your proposed building requirements, except in minor details, that such an ordinance would meet with slight opposition in comparison to the drastic anti-rat regulations now being enforced in other countries. We can, therefore, see no good reason why all future buildings in Los Angeles should not be made rat-proof under the requirements of a rat-proof building ordinance.

The effects of such an ordinance would not be apparent for a long period, but the ultimate results can be visualized by considering what the present situation would be had such an ordinance gone into effect fifty years ago. In addition to having a comparatively rat-proof city, the average structure of the city would be considerably above what it now is.

In addition to requirements enforceable by the building commission we feel that there are certain sanitary measures that are of equal importance in controlling rats in a city. These, of course, are concerned with the prevention of accumulations of garbage, rubbish, waste, refuse, and other filth that might afford food or shelter for rats either in buildings or upon any premises, yards, open lots, alleys, streets, or public places. They should also provide that all garbage shall be placed in tight metal receptacles with close-fitting covers. Provision should, of course, be made for the adequate collection of such garbage and other refuse at sufficiently frequent intervals to prevent overflow, and for the disposal of such waste in such a manner and place so that the disposal plant will not serve as an incubator for rats.

Other than the foregoing it is our opinion that rat control in a large city would benefit by the services of a rat inspector or officer whose duty it would be to carry on a constant campaign of instruction in rat control methods, stimulate public interest in rat control, investigate conditions favoring rat infestation, recommend methods of removing the most menacing sources of rats, and advise individuals and organizations generally in regard to rat-proofing repair of buildings and other control measures.

The Biological Survey has developed and accumulated a vast amount of information concerning methods of destroying rats, and in connection with carrying on educational campaigns for their control would be glad to cooperate with such a rat officer or with any organizations in the city of Los Angeles to whom it can be of service.

Very truly yours,
W. C. HENDERSON,
Acting Chief.

* * *

There is little more to be said. In view of the facts just presented, it certainly would seem reasonable to conclude that a metropolitan center such as Los Angeles with its vast local and port material interests and grave public health obligations would not hesitate to place on its statute books a rat-proofing ordinance of so simple and fair a character as that outlined; and which has the endorsements of federal, county, and city public health officials, of state and county medical societies, and of civic bodies such as the Chamber of Commerce and the Community Development Association.

More than a year of deliberation by the law-makers in two city councils would warrant the conclusion that this serious matter has had ample time for consideration so as to prevent hasty or ill-advised action. The prevention of bubonic plague should not be a matter for speculation or theorizing. Ultimately the advice of someone must be followed. It would seem reasonable to assume that the medical and lay endorsers of the proposed ordinance are of sufficient character and knowledge in the community to be worthy of the responsibility for giving sane, practical and scientific advice. Its sponsors hope that the proposed ordinance will come out of committee and go to passage at an early day.

* * *

For those who think that the bubonic plague is altogether a thing of the past in California, it may be of interest to know that in Los Angeles rats dying of bubonic plague, as proven bacteriologically, by animal inoculation and by culture tests, were demonstrated in December, 1926, in January, 1927, and in March, 1927.

Also that in Contra Costa County on July 10, 1927, a human being died of bubonic plague; and the health inspector demonstrated bubonic plague to exist among a number of ground squirrels which were captured in that district.

All of which should give reason for some serious contemplation by all who are tempted to think that this danger is altogether one of the past. For such is not the case. G. H. K.

NEWS

The College of Medical Evangelists of Los Angeles—Its Cosmopolitan Student Body and Its High Standing and Unusual Record—The College of Medical Evangelists, located in southern California (the work of the first two years at Loma Linda, near Redlands, and that of the last two years at Los Angeles), is unique in many ways.

It is owned and financed by a small evangelical denomination (Seventh Day Adventist) with the express object, as implied in its name, of preparing scientific doctors of medicine to devote unselfishly their lives to bettering the lot of the millions of men and women in non-Christian lands who so sadly need medical care. That this is a most altruistic and laudable purpose will be readily admitted. In fact it is the only school teaching scientific medicine in the United States emphasizing those phases of the life of the Great Physician concerning the healing art.

The graduates of the College of Medical Evangelists are to be found scattered all over the world. They are at work in the vast territories of China, from the borders of Tibet to the Yellow Sea. Numbers of them who might be living in their homeland in comfort and affluence are burying their lives in the furrow of earth's need in remote districts of the great empire of India. They are to be found dotting the but little known fastnesses of the Dark Continent of Africa, on the utmost borders of civilization, and in this way treading in the footsteps of the great Dr. David Livingston, who so nobly gave his wondrous life for the dusky sons and daughters of that then unexplored land.

It is interesting to note that more students from overseas attend the College of Medical Evangelists than come to any other college of medicine in this country. In the roster of its student body it registers men and women from India, Africa, Australia, New Zealand, China, Japan, and the islands of the seas. The last statistics published by the Council on Medical Education show thirty-nine students from foreign shores at present attending this school, almost double that of its nearest competitor in the United States in this respect, the numbers in all the others being quite insignificant.

In the matter of attendance it is far from being a small institution, having admitted to its freshman class this year 114 students, and having a total enrollment of 372.

There are only approximately twelve medical schools in our country which require the intern year, withholding the degree of Doctor of Medicine until the fifth or intern year has been completed. The College of Medical Evangelists, along with the medical schools of the Universities of California and Stanford, is one of this group of pioneers in this move for better and more thorough training of our doctors.

While the College of Medical Evangelists is not a part of or connected with any great university, it has nevertheless accomplished some quite well worthwhile achievements.

It sends more of its men to take the Triple Qualification Board of Scotland, which admits those holding its certificate to practice anywhere within the confines of the British Empire than any other medical college in the United States.

It is the pioneer and only medical college in the United States that has adopted and successfully carried forward what is known as the "cooperative plan of education," made famous by the School of Engineering of the University of Cincinnati and Antioch College, Ohio. In a way this plan is a revival of the old "preceptor method" of medical teaching concerning which so much has been said and written of late. The students, during their freshman and sophomore courses, are in school during practically the entire year. They are divided into two sections of equal size. While one section is pursuing its medical studies in the school the members of the other are obtaining a practical experience in the more humble duties of the

healing art in hospitals, dispensaries, clinics, and physicians' offices scattered throughout the state.

Recently one of its graduates took first place on Part II of the National Board of Medical Examiners, and was followed shortly after by another who took second place, while its record on the California State Board has been very creditable.

Officers of Pacific Coast Association of Railway Surgeons—The twenty-fifth annual meeting of the Pacific Association of Railway Surgeons was held at the Hotel Biltmore, Los Angeles, August 26 and 27. There were morning sessions and afternoon recreation. A barbecue was tendered by the Los Angeles committee on Friday evening at the Uplifters Grove, Santa Monica.

The following officers were elected for the ensuing year: Dr. E. G. Goodrich, Los Angeles, president; Dr. R. L. Ramey, El Paso, first vice-president; Dr. Philip Stephens, Los Angeles, second vice-president; Dr. C. A. Walker, San Francisco, treasurer; Dr. W. T. Cummins, San Francisco, secretary. The president appointed the following executive committee: Dr. G. S. Hall, Los Angeles; Dr. Henry Abrahm, San Francisco; Dr. W. B. Bowman, Los Angeles; Dr. E. N. Greenwood, San Francisco.

University of California Medical School—James Montrose Duncan Olmsted, Ph. D., has been appointed associate professor of physiology at the University of California, and will take up his work next year. Professor Olmsted was a Rhodes scholar at Oxford from 1908 to 1911, receiving his Ph. D. degree from Harvard in 1920. He was associate in physiology at the University of Illinois College of Medicine in 1920, and from there went to the University of Toronto as assisting professor.—*Bulletin of the Association of American Medical Colleges.*

University of California Medical School—The National Research Council has awarded a grant of $15,880 to the university to support investigations being made by Dr. Herbert M. Evans, department of anatomy, with particular reference to the relation of nutrition to fertility and the relation of the endocrine glands.

Dr. Herbert M. Evans of the department of anatomy, University of California Medical School, has been elected a member of the National Academy of Sciences.—*Bulletin of the Association of American Medical Colleges.*

Dr. Rudolph Matas, retiring professor of surgery at Tulane University, was made an Honorary Fellow of the Royal College of Surgeons in England on the occasion of the celebration of the Lister Centennial, April 5, 1927.—*Bulletin of the Association of American Medical Colleges.*

"Polio" Still Spreading in Ohio—Ohio is experiencing the greatest outbreak of poliomyelitis in its history. At the closing hour, October 1, 1927, there had been reported 750 cases of which, it is reported from various sources, sixty-nine had died.

Continuing warm weather undoubtedly has helped maintain the case rate and spread of the disease. The hot September days added "millions of dollars to the value of the corn crop," but at the probable expense of eight children per day who will remain more or less permanently crippled for life. If our theories are correct, not for ten days after killing frosts arrive will be permanent decline in cases set in. In the meantime it behooves all health authorities to exert their best efforts at recognition and quarantine of mild cases.—*Ohio Health News.*

The Pondville Cancer Hospital at Norfolk, Massachusetts, was created under authority of the legislature for the care of patients suffering from cancer under the administration of the State Department of Public Health and is one of the first institutions of this kind in this country. It is located in the township of Norfolk on the Boston-Providence Turnpike between Walpole and Wrentham. The hospital is now equipped to give full operative, x-ray, and radium service. While all types of cancer cases will be admitted, it is desirable, owing to the size of the hospital and the heavy cost at which it is being operated, that a large per cent of patients be of the type that can be benefited by our resources. The cases needing only custodial care will be admitted only if adequate care cannot be obtained elsewhere.—*Boston M. and S. Journal.*

Changes in Regulations Covering Liquor Permits and Prescriptions—These changes have been published in the *United States Daily* as follows:

1. All permits outstanding on October 1, 1927, and all new permits issued on and after that date hereafter will be required to be renewed annually. This change affects a large class of permits which heretofore have been treated as continuing in force until surrendered or revoked for cause.

2. Requirement is made that all permittees shall provide a safe and secure place of storage located on permit premises, to be inspected and approved by the administrator, and of sufficient capacity to hold the maximum quantity of intoxicating liquor authorized to be possessed at any one time. Under previous regulations only certain classes of permittees were required to furnish such storage.

3. The method heretofore in use of fixing the allowance of liquor withdrawals for non-beverage purposes on a quarterly basis has been changed to an annual basis with a restriction that not more than 50 per cent of the annual allowance may be possessed by a permittee at any one time.

4. Further restrictions are made on prescriptions of liquor for medicinal purposes by a new provision that a prescription for liquor must be filled within three days after it is issued unless the physician extends the time for not exceeding an additional three days, and a new requirement that compounded prescriptions in which potable distilled spirits are used may not be written or filled for a gross quantity in excess of six fluid ounces.

5. Provisions are made for new forms of applications for permit and permits containing stipulations for inspection of permit premises and records, designation and approval of managers of permit business, termination of permit in the event of change of ownership or management, description of storage place, and revocation of permit for violation of prohibition laws or regulations by the permittee or other persons employed by him in the exercise of the permit privileges.

If these changes mean, as the text seems to show, that physicians shall have to have a place of storage other than ordinary household or office equipment, another annoying requirement is thereby imposed.—*Boston M. and S. Journal.*

New Step in International Relations of Physicians—The cordial relations of the physicians of America, North and South, and their colleagues of the Old World, were further expressed by the appointment of American representatives to the editorial cabinet of the *Acta Dermato-Venereologica* published under the direction of Dr. Johan Almkvist of Stockholm, Sweden. The nominees are Howard Morrow of San Francisco, Howard Fox of New York, J. B. Shelmire of Dallas, D. R. Smith of Toronto, Pardo Castello of Havana, and Herman Goodman of New York.

The *Acta Dermato-Venereologica* publishes original contributions in French, German, or English within the field of dermatology, urology, and social hygiene, and items of interest of persons or progress in these specialties.

American literary contributions should be addressed to Dr. Herman Goodman, 18 East Eighty-ninth Street, New York City.

A Soldier Goes Home—The Medal of Honor worn by Major-General Leonard Wood for gallantry in

action might well have been bestowed for his services as a sanitarian. Although this distinguished soldier and statesman won his fame as an officer of the line and as a colonial governor, he was educated as a physician. This valuable training undoubtedly gave him a proper appreciation of the significance of sanitation and medical service. General Wood was military governor of Cuba when Walter Reed and his colleagues undertook their classic experiments on the transmission of yellow fever. It was Wood who issued the call for volunteers to aid in these tests and it was Wood who supported Major Reed and cooperated with him in his remarkable work. Later, in the Philippines, Governor-General Wood was particularly interested and active in the eradication of another scourge, leprosy. When this malady has been extirpated from the islands an ample share of credit will go to the doctor who became soldier and administrator.

Throughout his honorable career General Wood apparently never forgot the indelible lessons of his early medical training. Had he been successful in his presidential aspirations, there is no doubt that the cause of national health activities would have been advanced.—*Am. J. Pub. Health.*

Suicide in California—Statisticians, such as Dr. Louis I. Dublin and Dr. Frederick L. Hoffman, state that the suicide statistics do not justify recent comments regarding the alleged suicide epidemics which were aroused by the wide publicity given to student suicides in the first part of this year. Doctor Dublin has shown, in fact, that the general trend of suicide rates for all age groups in the ten original registration states has been downward ever since 1909. Doctor Dublin states that the death rates for suicide have been decreasing at all ages, but that the rate of decrease has been different for the various age groups, and more favorable, relatively, in the younger ages. There is nothing to indicate in the California statistics that there is any increase in suicides among those individuals who are from ten to nineteen years of age. —*Weekly Bulletin, State Board of Health.*

Supervisor, Crippled Children, Appointed — Miss Winifred Tougas has been appointed Supervisor, Crippled Children, under the provisions of the Crippled Children Act of the last legislature. Miss Tougas has had many years of experience with crippled children. She served under the Harvard Infantile Paralysis Commission for two and a half years and was for four years connected with the Minnesota State Board of Health, where she was engaged in searching out, examining and following up cases of paralysis resulting from acute poliomyelitis. She was associated for five years with the Robert B. Brigham Hospital in Boston, Massachusetts, whence she came to the California State Department of Public Health, beginning her new duties October 1.—*Weekly Bulletin, State Board of Health.*

University of California Professor Honored—Professor A. L. Kroeber, chairman of the department of anthropology at the University of California, has just been named faculty research lecturer for 1928.

The faculty research lecturer is selected each year by a faculty committee from among those scientists connected with the university who have contributed most to science during the previous year, or who have concluded some particularly interesting piece of work.

Doctor Kroeber is recognized as one of the leading men in his field in the United States and recently concluded an expedition to Peru for the Field Museum of Chicago, in search of material on the prehistoric natives of that district, made famous by the later Incas.—*University of California Clip Sheet.*

Ethics of Medical Newspaper Writing—Dr. Charles A. L. Reed was president of the American Medical Association at the time of its reorganization. He later was on the committee that formulated its "Principles of Ethics." He is now devoting himself exclusively to literary work, his last book, "The First Estate," just from the Stratford press, being a novel with a scientific motif. But, in addition to writing books, he writes an article on health and success every day for the King Features Syndicate, New York, which, in turn, furnishes the series for simultaneous publication in many newspapers of the United States, Canada, and foreign countries. Doctor Reed's views on the ethics involved in his newspaper work, are, therefore, of interest. In a recent interview he said:

"No, I have not 'retired.' I am now practicing 'educational medicine.' I am 'carrying the message to the masses,' as it were. It is true my articles are having a phenomenal run. This, in large part, is due to the influence of the medical profession. You see, I had long wanted to do just what I am now doing. The opportunity came to me unexpectedly. I saw, however, that newspaper writing could not be ethically combined with a fee-earning practice. Each was entirely ethical within itself, but the two wouldn't mix. The combination spelled 'advertising' with the worst form of unfair competition. My practice at the time was distinctly national. But, without hesitation, I announced to the entire medical profession that I would accept no more patients—and I haven't. Now, in spite of the fact that I have never published my home address in my articles—another fine ethical point—I do receive through my many newspaper offices literally hundreds of letters asking for treatment. In no single instance have I ever given it. The experience, however, shows what I mean by 'unfair competition.' On the other hand, I have used my articles, now numbering well on to two thousand, to create a higher appreciation of the medical profession by the general public—a better understanding between the two. This is a thing that I have been and am doing much more effectively, so far as publicity methods are concerned, than the profession in any locality can do in its own behalf. It is doubtless in recognition of this fact that, as I know to have been true in many instances, my professional colleagues have asked editors to put on my feature and have thus helped to extend my circulation and influence."

Reunion of Camp Greenleaf and Fort Riley Alumni —The second annual reunion and dinner of the Camp Greenleaf and Fort Riley Alumni will be held on Thursday, November 10, 1927, at the City Club, Los Angeles, at 6 p. m.

The inaugural reunion and dinner held last Armistice night was a delightful affair.

Despite the difficulty of locating the Alumni of these training camps now residing in southern California, paucity of publicity, and many counter-attractions, the attendance was good. The celebration was quite informal in character and was characterized by an abundance of good fellowship.

Vivid narration of thrilling experiences on land and sea by old chums and comrades in arms made an impression that will not soon be forgotten.

During our term of service at Greenleaf and Fort Riley as "buck privates" (and poor ones at that) many of us longed for the day to come when the emergency would be over, and as free-born American citizens we could say in powerful and picturesque language just what we thought of some of our instructors.

This reunion gave us that opportunity, and the fearless criticism of men and measures proved a source of unalloyed joy and hilarity. A fine and muh patronized hotel in Chattanooga, whose early fortune was alleged to have been linked in some way with the Wine of Cardui, was also a target of good-natured joshing.

A more somber and serious note was sounded after the bubbling effervescence evoked by the mingling of many friends whom we had not seen or heard from since leaving the training camp had subsided.

It was unanimously conceded that, in spite of abundant trials and tribulations incident to camp life, our

brief period of service with Uncle Sam's Army had been a distinct benefit and blessing.

All present united in the opinion that the celebration, in every sense, had been such a striking success that it ought to be made an annual event and held on the night before Armistice Day.

Captain John C. Copeland, 301 Story Building, was appointed permanent secretary. For the second annual reunion and dinner, to be held on November 10 (Armistice eve), a splendid program has been arranged.

Colonel E. L. Munson surgeon of the Ninth Corps Area, who for some time was the commanding officer of the Medical Officers' Training Camp at Camp Greenleaf, will be the principal speaker.

Thousands of medical officers who received their military training at Greenleaf hold Colonel Munson in affectionate remembrance.

It is safe to state that the splendid esprit de corps which characterized the Medical Corps was in a large measure due to the inspiring influence of Colonel Munson. He was the embodiment of culture, high courage and unselfish devotion. In the medical officers who had the good fortune to be within the sphere of his influence, Colonel Munson awakened a fine spirit of service and sacrifice.

In view of the fact that we are privileged to have such a distinguished guest as our principal speaker on this occasion, it is earnestly hoped that every physician holding a commission in the Reserves will make a special effort to attend.

All physicians who served in the late war, under whatever flag they were commissioned, are also cordially invited to this reunion and dinner.

Further particulars may be obtained from Colonel D. L. High, Los Angeles General Hospital; Major Sidney V. Kibby, 1308 Wilshire Boulevard; or from the secretary, Captain John C. Copeland, 301 Story Building, Los Angeles, California.

MEDICAL ECONOMICS

Hearing on Regulations for Caustic Poison—A public hearing on proposed regulations for the enforcement of the Federal Caustic Poison Act will be held at 10:30 a. m., Tuesday, September 20, 1927, at 216 Thirteenth Street, S. W., Washington, D. C., according to an announcement by the Food, Drug and Insecticide Administration, United States Department of Agriculture, which is charged with the enforcement of the act. The trade and all persons interested are invited to attend. Comments on the proposed regulations may be submitted either orally or in the form of letters or briefs.

The Federal Caustic Poison Act was passed by Congress and became effective on the date of its passage, March 4, 1927. The law provides that no penalty or condemnation shall be enforced for any violation of the act occurring within six months of its passage. Tentative regulations for the enforcement of the law have been prepared by the Department of Agriculture.

The purpose of the law is to safeguard the users of certain dangerous caustic and corrosive acids, alkalies, and other substances by requiring that parcels, packages, or containers suitable for household use bear upon the label or sticker the word "Poison" in uncondensed Gothic capital letters of not less than 24 point size and immediately following the word "Poison" directions for treatment in case of internal or external injury.

In lieu of personal appearance at the hearing, comments on the tentative regulations may be submitted in writing on or before September 20, 1927, to the Food, Drug and Insecticide Administration, United States Department of Agriculture, Washington, D. C. —U. S. Department of Agriculture.

TWENTY-FIVE YEARS AGO *

Excerpts From Our State Medical Journal—Taken From Volume 1, No. 1, November, 1902

From the initial editorial entitled "Purpose of the State Journal":

The *California State Journal of Medicine* will hereafter take the place of the annual volume of *Transactions of the Medical Society of the State of California.* The journal will be sent free to every member of the state society, and will be issued monthly. . . . The advertising pages of the journal will be limited in number and will be open only to advertising matter which complies with the strictly ethical standard that is so well understood by all, yet so frequently forgotten—when there is a financial reason to forget. The journal will be the partisan of no one and nothing save only and always an energetic partisan for honest, legitimate, ethical practice of the regular profession, for truth and right, and, first, last and all the time, for ORGANIZATION, and again ORGANIZATION, of the regular profession of California into a united body—the state society. . . .

From an editorial on "Membership in State Society":

The medical society of the state of California, at its meeting in 1901, decided to adopt the reorganization scheme suggested by the American Medical Association, and on motion a committee was appointed to formulate a new constitution and by-laws. At the meeting of 1902 the constitution and by-laws prepared by this committee were formally adopted. . . .

From an editorial on "Character of Advertising":

Pages of very many journals are devoted to paid notices of these "proprietary" articles and the average physician cannot tell them from the regular reading matter, which they purport to be. That such advertising pays is made evident by looking through the files of prescriptions at any drug store. Scores and scores of prescriptions will bear such directions as Punk and Dollar's Pill No. 362; Worth's Syrup Dogood; Elixir Rejuvenitis Compound, A. B. & Co. And nine times out of ten the physician who orders this stuff does not even know what he is prescribing. . . .

From an editorial on "San Francisco and the Plague":

The authorities . . . deserve the severest rebuke for their negligence in the matter of bubonic plague. . . . The various State Boards of Health in the United States are asking to unite in calling upon the Surgeon-General of the Marine Hospital and Public Health Service to arrange at the earliest possible date a joint conference for the purpose of eradicating plague from the United States. Since March 8, 1900, there have been eighty-eight cases recorded in California, fifteen of this number occurring since September 9, 1902. It is rumored that many other cases have occurred which were not reported. . . .

From an article on "Some Notes on the Visit of Professor Lorenz of Vienna to San Francisco":

Prof. Adolf Lorenz, a well-known orthopedic surgeon of Vienna, is making a tour of the United States,

* Through this "Twenty-Five Years Ago" column, it is hoped to familiarize colleagues who in more recent years have joined the California Medical Association, concerning the activities and work of our state association, and of members who were active in the period two decades and a half remote. For older colleagues who were members twenty-five years ago, it has been thought that the references may recall incidents and associations which may be of interest or pleasure to momentarily dwell upon. To know what our predecessors fought for and accomplished should make for increased loyalty to the traditions and objects of our organization.

visited San Francisco and Los Angeles, arriving in the former city on the evening of November 2 from Salt Lake. . . .

From the Proceedings of the California Academy of Medicine:

At the October meeting of the California Academy of Medicine Dr. William Fitch Cheney read a paper entitled "Report of a Fatal Case of Gastro-Duodenal Ulcer, with Autopsy Findings." . . . Doctor Barbat recalled a patient that he had recently seen in whose case there were some points of similarity to that of Doctor Cheney's patient. . . . Doctor Wilbur mentioned a rather unusual case that he had recently encountered. . . . Doctor Ophüls, in discussing the case presented by Doctor Cheney, said that two points of interest presented themselves to him. First, the ulcer was found with some difficulty. . . . Second, the history pointed to two ulcers. . . . Doctor Huntington dwelt upon the fact that dilatation of the stomach, which is supposed to be an ever present symptom when the pylorus is affected, was absent in the case reported by Doctor Cheney. . . . Doctor Rixford said that he shared the responsibility with Doctor Cheney, for he had early been called in consultation. . . . Doctor Brown called attention to the great importance of the proper medical treatment of these cases. . . .

Doctors Newmark and Sherman presented a patient of whom Doctor Newmark gave the following history. . . .

Dr. Mark White of the M. H. Service exhibited some specimens and slides of distomum fineuse. . . . He was of the opinion that it would be found here sooner or later, as would also most Asiatic diseases.

From an article by H. Bert Ellis:

The opening sentence of an article on "The Mastoid Operation in Chronic Suppurative Otitis Media" by H. Bert Ellis of Los Angeles read: "Of all diseases with which the otologist has to do, probably chronic otitis media gives him the most annoyance. These cases, more frequently than otherwise, are unsatisfactory to treat on account of their obstinacy to all the blandishments of the most versatile of conservative specialists; and further, on account of their proneness to recur, though pronounced cured, on the slightest provocation, even after lying dormant for shorter or longer periods of time.

From the Proceedings of the San Francisco County Medical Society:

Doctor Sherman also read "A Note Regarding Supracondyloid Fractures of the Humerus." The subject was discussed by Dr. Rixford, Dr. J. Henry Barbat, Dr. Cooper, Dr. Hunkin, and Dr. Kenyon, the point at issue being the best position in which to dress the fractured arm. . . .

From an article on "Bubonic Plague in California":

At the meeting of the State and Provincial Boards of Health of North America held at New Haven, Connecticut, October 29, 1902, the following history of the outbreak of bubonic plague in California was recited, and the appended resolutions were passed: . . . "and, ***Be It Further Resolved***, That the National Conference of State and Provincial Boards of Health of North America does hereby advise the various State Boards of Health of the United States to consider the propriety of calling upon the Surgeon-General of the United States Public Health and Marine Hospital Service to arrange at the earliest possible date a joint conference for the purpose of eradicating plague from the United States."

From the directory of officers and Proceedings of the Medical Society of the State of California (the former name of the C. M. A.):

The directory of the Medical Society of the State of California gave as the names of officers the following: F. B. Carpenter, president; George H. Evans, secretary; Elmer E. Kelly, treasurer; oration in medicine, William Watt Kerr; oration in surgery, Granville MacGowan. . . .

From the minutes of the proceedings of the Medical Society of the State of California at its thirty-second annual session held in Golden Gate Hall, 625 Sutter Street, San Francisco, California, April, 1902, is quoted: W. F. B. Wakefield of Oakland read a paper entitled "Conservatism in Gynecology," which was referred to the Committee on Publication, and was discussed by J. Henry Barbat of San Francisco. . . . Dudley Tait of San Francisco read a paper on the "Technique of Louget's Operation for Radical Cure of Hydrocele." This paper was referred to the Committee on Publication and discussed by M. Krotoszyner of San Francisco. . . . Special order of business was called. The Executive Committee presented the report of the Committee on Revision of the Constitution and By-Laws, and on motion of J. H. Parkinson, it was ordered that the report be read and adopted section by section. Philip Mills Jones for the Executive Committee then made their report. . . .

From a news clipping:

A physiology hall, containing a salt-water aquarium, research laboratories, and class laboratories, will be erected at once on the Berkeley campus, through the generosity of Mr. Rudolph Spreckels. Physiology Hall will shelter the new department which is to be organized by Dr. Jacques Loeb. . . .

From Tri-County Society proceedings:

The Tri-County Medical Society of California met in this city on Wednesday evening. Dr. Saxton Pope, the secretary of the society, arrived on the afternoon train. . . . Doctor Pope read a very interesting, instructive paper upon the subject, "Mosquitoes from a Medical Standpoint." The value of the paper was very materially increased by the splendid enlarged illustrations, which also represented Doctor Pope's artistic skill.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.
Secretary of the Board

Under a new law passed by the last legislature all practicing barbers must obtain a license issued by the Board of Barber Examiners, a certain test of competency being required, and it is estimated that more than 10,000 certificates will be issued.

According to an Associated Press dispatch dated Los Angeles, October 12, published in the San Francisco ***Examiner*** of October 13, Dr. Fred J. Barnett, Los Angeles physician, was sentenced to serve a total of 180 days in the county jail on each conviction in connection with liquor irregularities. He was acquitted on liquor-possession charges in each case. His defense was that the police officers had "framed" him because he had criticized the activities of a police captain.

In an editorial in the San Francisco ***Call*** of September 30, commenting on the announcement that seventeen doctors had been charged before the Board of Medical Examiners, the majority of them with violating the narcotic laws and illegal operations, it was related that "no profession in the world today has greater responsibility than the doctor's. Every day something new is learned about the human body. Somebody discovers something each year that upsets old theories and practice in medicine. The doctor gets

little enough credit for what he is doing or trying to do."

According to reports George H. Coulthard, Long Beach, California, was arrested by officers of the State Pharmacy Board, September 13, who charged him with violation of the State Poison Act, that is, illegal sale of morphin—a felony. The records show that Doctor Coulthard was arrested December 20, 1923, by the narcotic squad of the District Attorney's office charged with having violated the State Poison Law. On January 29, 1924, Special Agent Carter reported complaints in the courts of Long Beach, charging George H. Coulthard with violation of the Pharmacy Act as follows: October 4, 1923; October 30, 1923; December 20, 1923 (two). These cases were dismissed April and May, 1924.

Governor Young recently appointed Mrs. M. Pearl Newman, Mrs. Margaret A. Bering, San Francisco; Mrs. Susan Smith David and Leopold Cristion, Los Angeles; and Mrs. Leonore E. Herman of Oakland as members of the State Board of Cosmetology created by the last legislature. The board is reported as actively engaged in endeavoring to certify some 15,000 to 20,000 individuals in California that come under the provisions of this act.

Some of the Chinese herbalists in San Francisco are reported to have recently rubbed from their signs the lower portion of the "r" in the prefix "Dr." so as to make the prefix read "Dp." Whether this ruse will influence the courts when these individuals are brought to trial on a charge of violating the Medical Practice Act, remains to be seen.

According to reports of our investigation department, George Gwatkin, reported arrested in Los Angeles in 1925 by officers of the State Pharmacy Board, he then being reported as selling an asthma remedy apparently composed of oil of mustard and axle grease, was recently investigated, it being reported that he was selling a medicine or remedy, charging $30 "for enough to cure a patient—payable $15 down and the balance in ten months."

Kenzo Koga, a Japanese recently arrested in Delano on a charge of violation of the Medical Practice Act, pleaded guilty and was fined $100 and sentenced to a six months' jail sentence, suspended during good behavior for two years. It was related that Koga, posing as a physician, had practiced in California in different localities for some time, his only qualification being a diploma from the College of Mechano Therapy, Chicago, Illinois, dated 1911. "His office contained various medicines, vaccines, etc., approximately two hundred bottles, boxes, etc., some surgical instruments, catheters, etc., and several hypodermic needles." His offices located in the back of a Japanese poolroom were discovered by accident when the police were reported as having raided the place as a disorderly house.

B. H. Launsberry recently pleaded guilty to a charge of violation of the Medical Practice Act in Los Angeles and was sentenced to serve ninety days in the city jail "sentence being suspended two years on condition that the defendant does not violate the Medical Practice Act during that period." He is reported to have claimed that he was a graduate of the University of Pennsylvania in 1916 and licensed in New York the same year; however, his name does not appear in the 1927 American Medical Association directory, which lists all graduates of medical schools licensed to practice in North America.

William McBride, recently charged with surreptitiously extracting narcotics from the supply of various druggists, pleaded guilty in Los Angeles, but has not as yet been sentenced, he informing our investigator that he had been using narcotics about two years.

It was reported that on September 30 Morris Prelusky pleaded guilty in the city of Los Angeles to violation of the Medical Practice Act and was sentenced to one hundred days in the county jail, suspended for two years. According to a report, Prelusky, then employed in a Los Angeles drug store, had examined a patient, advising her that there was trouble with her appendix and giving her instructions regarding certain local treatments, also prescribing a liquid medicine, on the label attached to which appeared the name "Dr. Prelusky." The records show that on January 5, 1927, Prelusky was sentenced to pay a fine of $250 and serve thirty-five days in jail.

Our attention was recently directed to a newspaper advertisement of "Dr. M. M. Preston, 465 Geary, San Francisco," said advertisement relating that he himself was in possession of information relative to treatment that was unknown to anyone else in the world. He is reported to have told our investigator that he was a graduate of a medical college, but when arrested on a charge of violating the Medical Practice Act denied that he was a graduate in medicine, but reported that he had several astrological degrees.

Herbert J. Smith, an oil-field worker recently alleged to have posed as a physician, is reported to have pleaded guilty in Los Angeles County to a bad check charge on September 17 and sentenced to fifteen months in the county road gang, and is under probation for nine years following his release from the road gang.

The Board of Medical Examiners has found that the application of Weymouth Leo Swainson, based upon diploma from Meharry Medical College and a Tennessee license, contains fraudulent credentials and an article relating thereto has been forwarded the Bulletin of the Federation of Medical Examining Boards for publication.

Set upon by a pair of footpads when he stopped his machine in front of 6779 West Washington Street late last night, Dr. John Suckow, physician and capitalist of 1283 Third Avenue, was brutally beaten and robbed of his machine while two women companions looked on helpless to aid. . . .—*Los Angeles Record*, September 16, 1927.

Statement of the Facts and Opinions Agreed to by the International Meeting on Cancer Control Held at Lake Mohonk, New York, U. S. A., September 24, 1926—Although the present state of knowledge of cancer is not sufficient to permit of the formulation of such procedures for the suppression of this malady as have been successfully employed for the control of infectious diseases, there is enough well-established fact and sound-working opinion concerning the prevention, diagnosis and treatment of cancer to save many lives, if this information is carried properly into effect.

The causation of cancer is not completely understood, but it may be accepted that, for all practical purposes, cancer is not to be looked upon as contagious or infectious.

Cancer itself is not hereditary, although a certain predisposition of susceptibility to cancer is apparently transmissible through inheritance. This does not signify that, because one's parent or parents or other members of the family have suffered from cancer,

cancer will necessarily appear in other persons of the same or succeeding generation.

The control of cancer, so far as this subject can be understood at the present time, depends upon the employment of measures of personal hygiene and certain preventive and curative measures, the success of which depends upon the intelligent cooperation of the patient and physician.

Persons who have cancer must apply to competent physicians at a sufficiently early stage in the disease in order to have a fair chance of cure. This applies to all forms of cancer. In some forms early treatment affords the only possibility of cure.

Cancer in some parts of the body can be discovered in a very early stage, and if these cases are treated properly the prospect for a permanent cure is good.

The cure of cancer depends upon discovering the growth before it has done irreparable injury to a vital part of the body and before it has spread to other parts. Therefore efforts should be made to improve the methods of diagnosis in these various locations and the treatment of the cancers so discovered.

Practitioners of medicine must keep abreast of the latest advances in the knowledge of cancer in order to diagnose as many as possible of the cases of cancer which come to them.

There is much that medical men can do in the prevention of cancer, in the detection of early cases, in the referring of patients to institutions and physicians who can make the proper diagnosis and apply proper treatment when the physicians themselves are unable to accomplish these results. The more efficient the family doctor is the more ready he is to share responsibility with a specialist.

Dentists can help in the control of cancer by informing themselves about the advances in the knowledge of the causes of cancer, especially with relation to the irritations produced by imperfect teeth and improperly fitting dental plates. They can also help by referring cases of cancer which they discover to physicians skilled in the treatment of cancer in this location. It may be doubted whether all dentists fully realize the help which can be obtained from x-ray photographs in revealing not only the state of the teeth, but the condition of the bone surrounding them.

Medical students should be instructed in cancer by the aid of actual demonstrations of cancer patients, and this to a sufficient extent to give them a good working knowledge of the subject.

The most reliable forms of treatment and, in fact, the only ones thus far justified by experience and observation, depend upon surgery, radium, and x-ray.

Efforts toward the control of cancer should be made in two principal directions: (1) the promotion of research in order to increase the existing knowledge of the subject, and (2) the practical employment of the information which is at hand. Even with our present knowledge many lives could be saved which are sacrificed by unnecessary delay.—*Minnesota Med.*

A Story of Courage—"I do not want to be a doctor and live by men's diseases, nor a minister to live by their sins, nor a lawyer and live by their quarrels. So I don't see that there is anything left for me to be but an author. How would you like some day to see a whole shelf full of books, written by your son, with Hawthorne's Works printed on their backs?"

The boy who asked this question of his mother was destined to become the foremost of America's novelists. His "Twice-Told Tales" and "Mosses from an Old Manse" were followed by that product of genius, "The Scarlet Letter." In 1851 two events of importance occurred in Nathaniel Hawthorne's household—the publication of "The House of the Seven Gables," and the birth of his youngest child, Rose.

Rose Hawthorne grew up in an atmosphere surcharged with intellectualism. She showed a talent for painting, and studied art in Germany. She wrote short stories for the little folk in "Wide Awake" and "St. Nicholas," and a volume of poems, "Along the Shore." Some exquisite specimens of her poetry are preserved in Stedman's American Anthology. At the age of 20, Rose Hawthorne married George Parsons Lathrop, author of "Rose and Rooftree," who will always be remembered as the author of the lyric beginning, "The sunshine of thine eyes." Each of them wrote a study of Hawthorne, and in collaboration they produced a novel called "A Story of Courage."

With the passing of the nineteenth century, Rose Parsons Lathrop disappeared from the world. In 1900 there was a new Dominican religieuse, Mother Mary Alphonsa, devoting herself to destitute sufferers from incurable cancer. Her work in the Cherry Street Home in New York City, and in the Rosary Hills Home in the village of Hawthorne, placed her by the side of Father Damien among his lepers in Molokai. She founded the community of Dominican nuns known as the Servants of Relief for Incurable Cancer. Mother Alphonsa's creations seem anomalous in this Motor Age. If you had friends or money, you could not enter the homes of Mother Alphonsa—only if you were poor and friendless, were you received as a guest. If you were among the worst cases you would be tended by Mary Alphonsa herself, and you would be surprised to find that in addition to attending to all your needs, she sought to gratify every wish. In their last days the helpless and loveless victims of a baffling disease were face to face with a love that is rarely manifested on earth. In the Motor Age—and yet only those too poor to pay for any service were privileged to die holding the hand of a saint.

The other day the newspapers chronicled the passing of Mother Mary Alphonsa at seventy-six, and perhaps many were surprised to learn that she was no other than Rose Hawthorne Lathrop. The ancestors of Rose Hawthorne Lathrop whipped Quaker women and persecuted witches, but Mother Mary Alphonsa opened her arms to the cancer sufferers of every creed and race. Mrs. Lathrop wrote "A Story of Courage," but the tale does not compare with the story of courage which Mother Alphonsa lived.

The career of Mother Mary Alphonsa helps to redeem our era. To physicians, who know only too well the horrors of incurable cancer, the incredible sacrifice of this high-born woman has a special appeal. The history of cancer cannot be written without the story of Mother Mary Alphonsa and the Servants of Relief for Incurable Cancer.—*Medical Review of Reviews.*

Verses from the Pen of Dr. H. Edwin Lewis—The versatility of Doctor Lewis' gifts as a writer led him into many fields other than that of medicine, and some of his excursions into the realm of poetry earned for him considerable commendation.

FACES

Men's faces are the portraits of their souls,
The very image of their inmost thoughts,
For if man's life be warped by vice and crime,
His face will show their imprints more than all.
But let his life be full of noble deeds,
Of love for God and sympathy for man
And heav'n itself will touch the homely face
Like golden sunshine after April show'rs.

* * *

A DOCTOR'S PRAYER

To live to learn;
And find each close of day,
Myself a little nearer truth,
A little farther on my way.

A little life,
But give me, God, the pow'r
To conquer self and all the doubts
That rise from hour to hour.

And give me strength
When problems try my soul,
To know the right and do the right
With honesty my goal.

Nor let me fail
To do the best I can
To overcome earth's greatest curse,
The base ingratitude of man.